

JOURNAL
OF THE
INSURANCE INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

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THE INSURANCE INSTITUTE
OF GREAT BRITAIN AND IRELAND.

JOURNAL

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J. Beckwith Bell, . . .	Liverpool, . . .	1907.	Accident.
T. A. Bentley, . . .	Manchester, . . .	1907.	Fire.
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H. Bingham, . . .	Liverpool, . . .	1907.	Fire.
A. Blair, . . .	Glasgow, . . .	1898.	Fire.
W. Blair, . . .	Bristol, . . .	1905.	Fire.
J. Headon Boocock, . . .	Birmingham, . . .	1898.	Fire.
J. G. Boss, . . .	Newcastle, . . .	1899.	Fire.
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J. N. Clymer, . . .	Manchester, . . .	1907.	Fire.
A. H. Cowpe, . . .	Leeds, . . .	1905.	Fire.
H. D. Curnick, . . .	Manchester, . . .	1903.	Fire.
J. P. Eddison, . . .	Leeds, . . .	1899.	Fire.
W. R. Evison, . . .	London, . . .	1906.	Fire.
A. S. Fraser, . . .	Belfast, . . .	1903.	Fire.
H. S. Gayford, . . .	London, . . .	1907.	Fire.
J. Gemmill, . . .	Glasgow, . . .	1902.	Fire.
F. S. Goggs, . . .	Edinburgh, . . .	1904.	Accident.
N. B. Gunn, . . .	Edinburgh, . . .	1899.	Life.
A. Guthrie, . . .	Glasgow, . . .	1905.	Fire.
J. Mason Guttridge, . . .	Liverpool, . . .	1901.	Fire.
W. Hartley, . . .	Manchester, . . .	1904.	Fire.
J. Haslam, . . .	Nottingham, . . .	1899.	Accident.
H. M. Healy, . . .	London, . . .	1906.	Fire.
F. P. Hearn, . . .	London, . . .	1907.	Fire.
W. Holbrook, . . .	Leeds, . . .	1903.	Fire.
C. E. Howell, . . .	Dublin, . . .	1898.	Life.
Samuel Jackson, . . .	Liverpool, . . .	1908.	Life.
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Owen Dan Jones, . . .	Leeds, . . .	1901.	Fire.
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G. L. Lambert, . . .	Manchester, . . .	1903.	Fire.
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J. M'Kinnon, . . .	Liverpool, . . .	1907.	Fire.
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W. Richardson, . . .	Edinburgh, . . .	1903.	Fire.
J. B. Roberts, . . .	Leeds, . . .	1898.	Fire.
J. Robertson, . . .	London, . . .	1904.	Fire.
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Robert Taylor, . . .	Leeds, . . .	1906.	Fire.
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Founded 1907.

Objects : The cultivation of knowledge and information in all matters relating to the various branches of Insurance by means of—(a) The reading

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PRESIDENT—Edward Baumer, *Sun Fire*.

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COUNCIL—H. W. Andras, *Provident Life*; W. E. Blake, *London and Lancashire Fire*; J. C. Carstairs, *Law Union and Crown*; M. H. P. Coulson, *Atlas*; W. R. Evison, *Alliance*; H. Gayford, *Northern*; A. W. Hardy, *Phoenix*; F. P. Hearn, *Ocean*; E. B. Hiles, *Royal Exchange*; H. Human, *Guardian*; G. E. Mead, *Sun Fire*; R. M'Connell, *Royal*; G. H. M'Causland, *Commercial Union*; E. E. Westmacott, *Liverpool and London and Globe*.

HON. TREASURER—Henry Mann, *Commercial Union*.

HON. SECRETARY—G. M'Kay Morant, *King*, 8 Bucklersbury, London, E.C.

THE INSURANCE INSTITUTE, MANCHESTER.

Founded 1873.

PRESIDENT—J. Nicholas Clymer, *Atlas*.

VICE-PRESIDENTS—Hugh C. Evans, *Royal*; John Loudon, *Royal Exchange*; Thos. A. Bentley, *London and Lancashire Fire*.

COUNCIL—W. O. Coates, *Liverpool and London and Globe*; A. E. Evans, *Scottish Union and National*; W. Hartley, *London and Lancashire Fire*; E. Johnstone, *Union*; Herman Ogden, *Sun Fire*; John Speers, *Commercial Union*.

HON. LIBRARIAN—W. de Witt Blackstock, Broker.

HON. TREASURER—George H. Nichols, *Ocean*.

HON. SECRETARY—F. W. Holding, *Commercial Union*, 4 Chapel Walks.

THE INSURANCE ASSOCIATION OF MANCHESTER.

Founded 1883.

Objects: To encourage the delivery of essays and lectures upon subjects connected with Insurance, and discussion thereon; to organise visits of inspection to such risks as the Committee of Management may decide upon; and to promote social intercourse amongst those connected with Insurance Companies.

PRESIDENT—W. Henry Williams, *North British and Mercantile*.

VICE-PRESIDENTS—W. O. Coates, *Liverpool and London and Globe*; C. Lambert, *Legal and General*; Henry Ray, *Essex and Suffolk*.

COMMITTEE—S. Barker, *State*; W. Collinge, *Sun*; A. E. Hartley, *Guardian*; W. A. Hobbins, *Liverpool and London and Globe*; W. E. E. Humble, *Ocean*; H. P. Jackson, *Liverpool and London and Globe*; W. C. N. Lane, *Royal*; L. K. Mattinson, *State*; B. F. Shattock, *Guardian*; F. R. Smith, *Scottish Union and National*; R. Wardman, *Royal Exchange*; S. P. Wood, *Western*.

HON. TREASURER—T. H. Johnson, *Western*.

HON. SECRETARY—E. A. Chambers, Broker, 16 John Dalton Street.

THE INSURANCE INSTITUTE OF NEWCASTLE-ON-TYNE.

Founded 1896.

Objects: The promotion and cultivation of a thorough knowledge of Insurance business by means of the reading of papers, the delivery of lectures upon subjects connected therewith, the discussion of questions relating thereto, the formation of a Library, the inspection of risks and in any other way which may be deemed desirable, and, generally, the promotion of social intercourse amongst the members.

PRESIDENT—J. H. Chapman, *Norwich Union Fire*.

VICE-PRESIDENTS—W. G. Neish, *Northern*; J. Pringle, *Royal*; A. Woodburn, *Alliance*; F. F. Worthington, *Union*.

PAST PRESIDENTS—James Logan, sen.; R. A. Wood, Sir Riley Lord, John G. Boss, Allan de Buriatte, James Logan, jun.; James Hopper, J. S. Waterstone, C. Shutt.

COMMITTEE—E. G. Andrews, *Alliance*; G. E. Hansen, *Norwich Union Fire*; J. R. Liddell, *Royal*; T. C. Metcalf, *Atlas*; J. G. Ogilvie, *Caledonian*; D. G. Owen, *Commercial Union*; F. W. Pantton, *Norwich Union Fire*.

HON. LIBRARIAN—G. E. Henderson, *Royal*.

HON. TREASURER—M. W. Scott, *Union*.

HON. SECRETARY—James Hopper, *Sun*, Sun Insurance Buildings, Collingwood Street.

THE NORWICH INSURANCE INSTITUTE.

Founded 1886.

PATRONS—Major F. Astley Cubitt, J.P.; S. Gurney Buxton, D.L., J.P.

PRESIDENT—C. A. Bathurst Bignold, D.L., J.P.

VICE-PRESIDENTS—W. P. Abel, Norwich; W. H. Andersson, Liverpool; J. de Caux, Norwich; J. H. Chapman, Newcastle; G. O. Clark, Norwich; A. M. Clydesdale, Glasgow; J. F. Cubitt, Bristol; H. D. Curnick, Manchester; F. Dalton, Birmingham; J. J. W. Deuchar, Norwich; A. Dixon, Toronto; Caryl Fiennes, Dublin; J. Montgomery Hare, New York; J. B. Laidlaw, Toronto; E. B. Parkes, Mexico; John Large, Norwich; W. H. Lowden, San Francisco; Bruce Morrison, F.R.G.S., London; C. E. Noverre, London; Hugh Pantton, Sunderland; F. Oddin Taylor, D.L., J.P., Norwich; J. T. Ward, Belfast; Leslie Watson and Joseph Watson, Leeds.

TRUSTEES—W. P. Abel, J. de Caux, L. B. Fügl, F. O. Taylor.

COUNCILLORS—W. Jecks Drane, E. B. Corshie, E. Felce, L. B. Fügl, W. Blazeby.

TREASURER—C. R. Quinton.

AUDITOR—H. C. Booty. LIBRARIAN—C. B. Pigot.

CURATOR—F. J. Hall. HISTORICAL CURATOR—E. Felce, F.R. Hist. S.

MICROSCOPIST AND PHOTOGRAPHER—R. J. Delf.

HON. SECRETARY—W. Thouless. HON. ASSISTANT SECRETARY—J. Grinling.

{Secretaries' Addresses—9 Surrey Street, Norwich.

THE NOTTINGHAM INSURANCE INSTITUTE.

Established 1898.

Objects: The reading of papers and the delivery of lectures upon subjects connected with Insurance business generally, the discussion of all questions relating thereto, and the promotion of social intercourse amongst the members of the profession in Nottingham and district.

PRESIDENT—T. J. Plant, *Royal Exchange*.

VICE-PRESIDENTS—W. H. M'Dermott, *Alliance*; E. Neave, *Guardian*.

COUNCIL—C. R. Walton-Clarkson, *Norwich Union*; T. B. Redgate, *North British and Mercantile*; H. Taylor, *Royal Exchange*; W. H. Warsop, *Scottish Provident*; J. W. Foster, *Scottish Accident*; H. W. Saunderson, *Northern*; L. J. Towle, *Atlas*.

HON. TREASURER—F. Hill, *Norwich and London*.

HON. SECRETARY—T. Henshall, *London Assurance*, 25 Victoria Street.

THE INSURANCE INSTITUTE OF YORKSHIRE, LEEDS.

Founded 1888.

Objects: The delivery of lectures on subjects connected with Insurance business, the discussion of questions relating thereto, and, generally, the promotion of social intercourse amongst the members of the Insurance profession in Yorkshire.

PRESIDENT—J. D. Hill, *Alliance*.

VICE-PRESIDENTS—E. A. Birks, *Yorkshire*; W. Holbrook, late *Royal*; W. A. Holroyd, *Sun Fire*; A. Moorhouse, F.I.A., *Friends' Provident*; R. Taylor, *Liverpool and London and Globe*.

PAST PRESIDENTS—T. S. Riley, J. Wardle, J. B. Roberts, C. M. Tate, J. W. Wootton, P. L. Newman, B.A., F.I.A.; D. M. Linley, J. P. Eddison, F. J. Allen, H. Pocklington.

COUNCIL—T. G. Brunskill, *Royal*; F. Bingham, *British Law*; H. Cooke, *Liverpool and London and Globe*; R. A. Dixon, *Liverpool and London and Globe*; C. E. Fox, *London and Lancashire Fire*; W. E. Metcalf, *North British and Mercantile*; F. E. Oates, *Alliance*; G. Potter, *Sun Fire*; A. W. Sneath, *Commercial Union*; F. B. Teale, *Commercial Union*; W. Thorp, Assessor; E. S. Wood, *Atlas*.

HON. TREASURER—F. Denton, *Sun Fire*.

HON. LIBRARIAN—T. S. Parker, *Sun Fire*.

HON. SECRETARY—E. Bagshaw, *Phoenix*, Phoenix Chambers, South Parade, Leeds.

ASSISTANT HON. SECRETARY—H. R. Sutcliffe, *Phoenix*.

INSTITUTES AFFILIATED WITH THE FEDERATION.

THE INSURANCE INSTITUTE OF MONTREAL.

Founded May 1900.

HONORARY PRESIDENT—The Right Honourable Lord Strathcona and Mount Royal, G.C.M.G.

PRESIDENT—Seargent P. Stearns.

VICE-PRESIDENTS—C. C. Hole, *Royal Victoria Life*; Lansing Lewis.

PAST PRESIDENTS—W. M. Ramsay, *Standard Life*; G. F. C. Smith, *Liverpool and London and Globe*; B. Hal Brown, F.S.S., *London and Lancashire Fire*; E. P. Heaton, *Guardian*; T. L. Morrissey, *Union*.

MEMBERS OF COUNCIL—P. R. Gault, H. R. Holland, G. Lyman, *Norwich Union*; J. Rowat, W. A. Wilson.

HON. TREASURER—T. F. Dobbin, *London and Lancashire Fire*.

HON. SECRETARY—John M'Ewen, *Norwich Union Fire*.

INSTITUTE ROOMS—Inglis Building, 2381 St. Catherine Street.

THE INSURANCE INSTITUTE OF NEW ZEALAND, WELLINGTON.

Established 1899.

PRESIDENT—Morris Fox, *Government Life*.

VICE-PRESIDENT—A. E. Kernot, *Australian Alliance*.

COMMITTEE—A. E. Gibbs, *Colonial Mutual Life*; H. L. Levestam, *Government Life*; C. M. Montefiou, *Ocean Accident*; C. D. Morpeth; G. T. Mason, *London and Lancashire*; T. W. Pilcher, *Manchester Fire*; Sortain Smith, *Government Life*; J. Wishart, *Australian Mutual Provident*.

HON. AUDITOR—C. Brooke-Taylor, *South British*.

HON. SECRETARY AND TREASURER—A. E. Waterson, *Ocean Accident*, 4 Custom House Quay.

THE INSURANCE INSTITUTE OF SOUTH AFRICA, CAPE TOWN.

PRESIDENT—A. M'Guffie, *Scottish Union and National*.

VICE-PRESIDENT—R. H. Mitchell, *Southern*.

MEMBERS OF COUNCIL—Wm. Elliott, *Southern*; John Robb, *S.A. Mutual*; Ralph S. Price, *Economic*; R. R. Brydone, *Federal*; H. M. Boddy, *Manufacturers*; A. C. F. Gore, *Guardian*; W. W. Bird, *Yorkshire*; J. Hulme, *London and Lancashire*; R. Y. Sketch, *Ocean*; E. P. Hudson, *New Zealand*.

HON. SECRETARY AND TREASURER—William Mathieson, *Colonial Mutual Buildings*, 106 Adderley Street.

THE INSURANCE INSTITUTE OF TORONTO.

Founded 1899.

HON. PRESIDENT—Hon. Geo. A. Cox, President, *Canada Life*.

PRESIDENT—E. Willans, *Imperial Guarantee*.

VICE-PRESIDENT—L. Goldman, A.I.A., *North America Life*.

CURATOR—H. W. Crossin, *Canadian Fire Underwriters*'.

TREASURER—C. Elvins, *Imperial Life*.

SECRETARY—A. G. Portch, A.I.A., *Canada Life*, 27 and 29 Wellington Street, East.

COUNCIL—C. H. Fuller, *Continental Life*; F. J. Lightbourn, *Ontario Accident*; W. C. Macdonald, *Confederation Life*; A. Wright, *London and Lancashire Fire*; G. P. Payne, C.F.U.A.; A. H. Rodgers, *Norwich Union Fire*; H. A. Sherrard, *Western Fire*; C. Hughes, *Crown Life*; C. N. Neely, *Ocean Accident*; L. A. Winter, *Manufacturers' Life*; E. F. Garrow, *British America Fire*; F. J. Sparling, *National Life*; C. W. I. Woodland, *Employers' Liability*.

THE INSURANCE INSTITUTE OF VICTORIA, MELBOURNE.

Established 1884.

PRESIDENT—A. M'Laughton, F.I.A., *National Mutual Life*.

VICE-PRESIDENT—Alan H. Russell, *Union*.

COMMITTEE—Selwyn King, *Mercantile Mutual*; C. E. Howard, *London*; A. H. Price, *New Zealand*; A. C. Trapp, *British Dominions Marine*.

HON. LIBRARIAN—Hugh McLean, *Fire Underwriters' Association*.

HON. AUDITOR—B. Goldsmith, *China Traders'*.

HON. SECRETARY AND TREASURER—R. J. White, *Guardian*, 405 Collins Street.

INSURANCE CLERKS' ORPHANAGE.

Object: To maintain and educate orphan or necessitous children of Clerks and Officials of Insurance Companies who were Members of the Orphanage by placing such children at selected schools, and making money grants for their clothing, between the ages of 6 and 16.

Members and Subscribers may commence their Annual Subscriptions on any one of the following dates, viz.:—1st February, 1st May, 1st August, or 1st November, and all future Subscriptions will be due on the date so selected.

NOTE.—5s. annually qualifies for Membership. £3 3s. in one sum qualifies for a Life Membership.

PRESIDENT—The Right Honourable Lord Rothschild, G.C.V.O.

VICE-PRESIDENTS—The Right Hon. Lord Avebury, F.R.S., D.C.L., LL.D., Director, *Phoenix Fire*, *Pelican and British Empire Life*, and *British and Foreign Marine*; George H. Burnett, Hampstead; John Coles, Chairman, *Clerical, Medical and General Life*; Sir F. D. Dixon-Hartland, Bart., M.P., Director, *The Westminster Fire* and *Westminster and General Life*; C. G. Fothergill, Director, *London and Lancashire Fire*; H. Ernst Hall, Chairman, *Fire Offices' Committee*; Robert Lewis, *Alliance*; Marlborough R. Pryor, Director, *Sun Fire*.

CHAIRMAN—Saml. J. Pipkin, *Atlas*.

DEPUTY-CHAIRMAN—E. H. Holt, *Law Life*.

OFFICE—65 Watling Street, London, E.C.

SECRETARY—R. C. Cole.

THE INSURANCE INSTITUTE OF GREAT BRITAIN AND IRELAND.

THE Twelfth Annual Conference was held in the Adelphi Hotel, Liverpool, on Friday, 29th May, 1908, on the invitation of the Insurance Institute of Liverpool. Mr. Charles Alcock (General Manager of the Royal Insurance Company, Ltd.), President of the Federation, occupied the chair, and there were present:—

Past Presidents—E. ROGER OWEN (Commercial Union), London; F. DALTON (Norwich Union), Birmingham; JOHN G. BOSS (Royal), Newcastle-on-Tyne; THOMAS A. BENTLEY (London and Lancashire Fire), Manchester; SAMUEL J. PIPKIN (Atlas), London.

Hon. Secretaries to the Examiners—A. W. SNEATH (Commercial Union), Leeds; W. HOLBROOK (late Royal), Leeds.

Hon. Secretary to the Publications Sub-Committee—Represented by STEWART LAWRIE (Alliance), Glasgow.

Founder of Insurance Clerks' Orphanage—ALBERT D. BROOKES (Alliance), Bristol.

Hon. Secretary to the Liverpool Insurance Institute—HUGH TAYLOR (Northern), 5 Tithebarn Street.

Examiners—J. B. BELL (State), Liverpool; J. A. BEWLEY (Royal), Liverpool; H. BINGHAM (Liverpool and London and Globe), Liverpool; W. BLAIR (Northern), Bristol; J. H. BOOCOCK (Commercial Union), Birmingham; J. N. CLYMER (Atlas), Manchester; A. H. COWPE (Royal), Leeds; H. D. CURNICK (Norwich Union Fire), Manchester; W. R. EVISON (Alliance), London; N. B. GUNN (Scottish Widows), Edinburgh; A. GUTHRIE (Sun Fire), Glasgow; J. M. GUTTRIDGE (Alliance), Liverpool; J. HASLAM (Ocean), Nottingham; H. M. HEALY (Commercial Union), London; F. P. HEARN (Ocean), London; W. S. KINNEAR (Royal Exchange), Dublin; G. L. LAMBERT (North

British and Mercantile), Manchester; R. McCONNELL (Royal), London; J. McKINNON (Liverpool and London and Globe), Liverpool; R. H. RUSSEL (Atlas), Northampton; R. TAYLOR (Liverpool and London and Globe), Leeds; A. D. L. TURNBULL, London; R. WALTON (Northern), Liverpool.

Secretary to the Federation—CHARLES STEVENSON, Manchester; and the following delegates:—

BELFAST	-	-	-	W. M. POTTERTON (<i>Scottish Widows</i>), President. J. M. SCOTT (<i>London and Lancashire</i>). JAMES WILLIAMSON (<i>Scottish Metropolitan and British Law</i>), Hon. Secretary.
BIRMINGHAM	-	-	-	A. J. LEWIS (<i>Sun</i>), Vice-President. C. F. CARSON (<i>Sun</i>), Hon. Secretary.
BRISTOL	-	-	-	H. S. RADCLIFFE (<i>North British and Mercantile</i>), President. GRAHAME H. WILLS, J.P. H. B. SIMMONS (<i>State</i>), Hon. Secretary.
CARDIFF	-	-	-	E. H. SCHIELE (<i>Royal</i>), Hon. Secretary.
EDINBURGH	-	-	-	J. A. COOK (<i>Scottish Union and National</i>), President. W. A. SMITH (<i>English and Scottish Law Life</i>). D. M. CAMERON (<i>Alliance</i>), Hon. Secretary.
GLASGOW	-	-	-	W. HUTTON, F.F.A. (<i>Scottish Amicable</i>), President. P. McNEIL (<i>Caledonian</i>). STEWART LAWRIE (<i>Alliance</i>), Hon. Secretary.
IRELAND	-	-	-	WILLIAM COOTE (<i>Sun</i>), Ex-President. W. A. McCONNELL (<i>Caledonian</i>), Hon. Secretary.
LIVERPOOL	-	-	-	A. ROBERTSON, F.F.A. (<i>Caledonian</i>). H. WYATT (<i>London and Lancashire</i>).
LONDON	-	-	-	GEORGE C. MORANT (<i>Commercial Union</i>), President. H. GAYFORD (<i>Northern</i>). G. McKAY MORANT (<i>King</i>), Hon. Secretary.
MANCHESTER (INSTITUTE)	-			HUGH C. EVANS (<i>Royal</i>).

MANCHESTER (ASSOCIATION)	W. H. WILLIAMS (<i>North British and Mercantile</i>), President. W. O. COATES (<i>Liverpool and London and Globe</i>). E. A. CHAMBERS, Broker, Hon. Secretary.
NEWCASTLE-ON-TYNE	- J. H. CHAPMAN (<i>Norwich Union</i>), President. W. G. NEISH (<i>Northern</i>).
NORWICH	- - - W. H. ANDERSSON (<i>Norwich Union Fire</i>), Vice-President. W. THOULESS (<i>Norwich Union</i>), Hon. Secretary.
NOTTINGHAM	- - - T. J. PLANT (<i>Royal Exchange</i>), President. J. W. FOSTER (<i>Scottish Accident</i>). W. H. MACDERMOTT (<i>Alliance</i>).
YORKSHIRE	- - - F. J. ALLEN (<i>Atlas</i>). R. A. DIXON (<i>Liverpool and London and Globe</i>).
CHARTER COMMITTEE	- F. W. P. RUTTER (<i>London and Lancashire Fire</i>), Liverpool.

Apologies were received from :—

Past Presidents—James Ostler (*Northern*), Manchester; S. G. Moxey (*Prudential*), Bristol; David L. Laidlaw (*North British and Mercantile*), Glasgow; Bernard H. O'Reilly (*Patriotic*), Dublin.

Examiners—J. P. Eddison (*North British and Mercantile*), Leeds; A. S. Fraser (*Commercial Union*), Belfast; J. Gemmill (*Royal Exchange*), Belfast; F. S. Goggs (*Scottish Metropolitan*), Edinburgh; W. Hartley (*London and Lancashire Fire*), Manchester; C. E. Howell (*Standard Life*), Dublin; M. P. Jones (*Atlas*), London; O. D. Jones (*London and Lancashire Fire*), Leeds; J. Corbet McBride (*Commercial Union*), London; P. L. Newman (*Yorkshire*), York; C. E. Noverre (*Norwich Union Fire*), London; H. J. Pearce (*Scottish Amicable*), London; H. Pocklington, Leeds; W. Richardson (*Norwich Union Fire*), Edinburgh; J. B. Roberts (*Sun Fire*), Leeds; J. Robertson (*Northern*), London; H. T. Sneezum (*London and Lancashire*), London; K. J. Tarrant (*Sun*), London; W. M. G. Wilson, Edinburgh.

Delegates—T. W. Essex (*Royal*), Birmingham; T. E. Halfpenny (*Yorkshire*), Cardiff; L. L. Pugh (*Century*), Cardiff; J. Acason (*Yorkshire*), Ireland; John Loudon (*Royal Exchange*), Manchester; C. A. Bathurst Bignold, D.L., J.P. (*Norwich Union Fire*), Norwich.

After the adoption of the minutes of last Conference, the Secretary read the following

REPORT FOR THE YEAR 1908.

In reporting for the past year, it is again the pleasing duty of the Council to note most satisfactory progress. It will be remembered that at last year's Conference four new Local Institutes were admitted to the Federation, viz.:—London, Liverpool, Cardiff, and Belfast. The admission of these Institutes has not only greatly strengthened the Federation, but it practically completes its organisation so far as this country is concerned. The Insurance profession in the United Kingdom is now united in the great work of educational advance, and it will be the aim of the Council in future years to develop and extend the work in every direction.

The Special Committee entrusted with the duty of preparing a new Constitution was re-appointed at last Conference with additions to its membership, and has completed its labours. The new draft Constitution approved by all the Local Institutes is now submitted to the Conference for approval.

The Report of the Examiners' Committee, which will be submitted to Conference, shows a substantial advance both in the number of candidates and the number of papers submitted. The candidates this year numbered 424, as compared with 243 in 1907, while the number of papers sent in was 1,435 and 843 respectively. The number of passes is 67% in 1907 and 68% in 1906.

The Report of the Publications Committee is also submitted. The Journal for 1907—Volume X.—contains no new features, but the quality and variety of the papers maintain the high standard which has ever marked this publication. There are ten papers dealing with Fire Insurance, three with Life, and one with Marine, also one paper on the Agency System of Insurance Companies. The Committee submit for approval a list of subjects for Volume XI., but in view of prospective changes in the Federation, have left the

selection of subjects for papers to be prepared next winter for Volume XII. to the new Publications Committee. The subject index of papers on Insurance contributed from all sources was recently issued. The warmest thanks of the Executive are due to Mr. Archibald Blair, the Hon. Secretary of the Publications Committee, for the great labour bestowed on this work, which is highly appreciated, and will be of immense value to the profession. It is with sincere regret that the Executive learn of Mr. Blair's impending resignation, and they take this opportunity of recording their indebtedness to him for his valuable services during the past two years.

The Insurance Clerks' Orphanage continues its beneficent work. There are now 29 orphans receiving free board and education, and the total number of members is now 2,733, which includes 339 new members.

The Treasurer's Statement for the past year is a good index of the growth of the Federation. The receipts for the year were £533 16s. 0d., being an increase of £117 3s. 4d., and the account closes with a balance in hand of £447 4s. 10d., as compared with £305 1s. 3d. at the end of 1906.

The thanks of the Executive are again tendered to all the willing workers who, in the midst of the many exacting labours of their profession, have yet found time to devote to the ever-increasing demands of the Federation. They have their reward in the knowledge that by their efforts a large body of Insurance clerks are now qualifying by diligent study to attain a greater efficiency in their business, and that thereby the whole tone and status of the profession is raised. The Federation is under special obligations to the President and the Hon. Treasurer, to the Hon. Secretaries of the Examiners and the Publications Committees, to the Examiners, and to the members of the Special Committee who drew up the new Constitution. They also thank the Insurance Press for the readiness with which every publicity is given to the work of the Federation.

The PRESIDENT (Mr. Charles Alcock) then addressed the

Conference as follows:—Gentlemen,—On behalf of the Insurance Institute of Liverpool, it is my privilege and pleasure to welcome you to-day, and I desire to add that so large an attendance of delegates is a compliment to the City of Liverpool which we greatly appreciate. You were good enough at your last Conference to elect me President for the year just ended, and I am painfully conscious that through want of knowledge, but not through lack of interest, I have done so little to promote the interests of the Federated Institutes. Fortunately the good work which has been done by my predecessors ensures continued progress and prosperity, and the able and experienced members of the Executive Committee have more than made up for my deficiencies.

Liverpool, while not the birth-place of the first Insurance Company, can claim some strong and growing children, some of which have now reached a respectable middle-age, but are still young compared with our early eighteenth-century friends founded in London, some of which I believe were represented in this city when our first Company, the Liverpool Fire Office, was started in 1777. Neither that Office nor its immediate successor, the Liverpool St. George Fire Office, had a lengthened existence, but in 1836 a Company was formed which has successfully weathered the Insurance storms, including the historical disasters of 1871, 1872, and 1906, and now occupies a pre-eminent position as Liverpool's senior Office. The Liverpool Companies junior to the one referred to, also occupy prominent positions in the Insurance world.

Liverpool in the past has deserved reproach for neglect in the matter of an Institute, but now that that is a thing of the past we hope that our shortcomings will soon be forgotten and forgiven, and that the energy with which our local Institute is being conducted will atone for past neglect. I will not plead as an extenuating circumstance that London was as remiss as Liverpool in this matter. Looking back, there is no doubt that we ought to have been stimulated by the example of our near neighbour Manchester, which city can claim, I believe, to be the birth-place of Institutes.

At our last Conference a Committee was appointed to revise our Constitution with a view, at a later date, to our applying to the Privy Council for the grant of a charter. The members of the Committee then appointed have devoted much time and labour to the work remitted to them, with the result that after an existence of eleven years the Federation, the promotion of whose interests is the object of our meeting to-day, has reached an important stage of its career, as one of the proposals which will be submitted for your consideration is the adoption of a new name and a new Constitution. I feel that a special honour falls to my lot in having to stand sponsor to the Federation at this most interesting period of its existence.

One of my distinguished predecessors stated with much truth that the two aspects of our Institute are social and educational, and my experience, though limited, fully confirms this opinion. From the social point of view much benefit is derived not only in the present but in the future. The intercourse which our Institutes promote, leads to acquaintances being formed which often develop into lifelong friendships, which go far to soften the asperities which our strenuous occupation may engender.

To those of our friends present who happen to hold responsible positions as Branch officials, I would suggest that the social side of our Institutes must, through creating a better knowledge and friendlier feeling among competitors, lead to a general desire to keep competition within the limits of fair play, and ensure everybody playing the game.

The educational aspect is even more important, and I have been much impressed during my twelve months of office, with the thorough and efficient manner in which the examinations are conducted, and the opportunity and encouragement which are thus afforded to the coming men, the younger more particularly, in our profession. The founders and other members of long standing of the various Institutes, who I may call pioneers, must be greatly gratified with the progress and development of the educational work which they inaugurated, and to find the recognition which has now been

secured and the assistance which several of the Institutes now receive through the public Educational Authorities. The present position has only been attained by an enormous amount of honorary work. Secretaries and Committees, Class Teachers, Lecturers, all deserve tribute for the enthusiasm, zeal, and self-denial with which they have devoted themselves to their self-imposed duties. In fact, I am so deeply impressed with the arduous nature of the Examiners' duties that I would suggest that past Presidents should be exempt from all participation.

As an evidence of the educational work which has been done by the Federation, I may mention that over 1,700 students have passed examinations. This, it is obvious, must represent a large amount of study, of which only a small proportion would have been given but for the Federation. It may be thought that these figures bear only a small proportion to the total number engaged in the profession, but it must be remembered that they are practically all from the ranks of young men whose knowledge will tend to leaven the profession as a whole, and raise the general average of knowledge and efficiency. The present year, as you will have seen, has established a record, the number of candidates being greatly in excess of any previous year, while the proportion of successful candidates is greater than before.

Another important and satisfactory feature regarding the educational functions of the Federation, is the connections which have been established of late between certain local Institutes and public Educational bodies. Here in Liverpool arrangements have been made by which members of the Institute can attend on favourable terms, lectures at the School of Commerce Classes which are conducted under the auspices of the University of Liverpool. At Newcastle there is an Electricity Class which students of the Institute can attend on payment of reduced fees. At Dublin classes are held under the Rathmines School of Commerce. At Manchester there are Insurance Classes at the Municipal Evening School, and while my statement with regard to these matters may not be complete, I think it shows the direction in which

matters are tending, and the recognition which Insurance is receiving as a subject for study.

The Colonial Institutes which are affiliated to us are doing good work, being equally alive with ourselves to the necessity of enlarging the educational advantages of Institutes, and while they no doubt will welcome encouragement and look to the Mother Country for information and a lead in matters of this kind, they would seem to need little, if any, stimulus to exertion, as in all matters, including Insurance, there is never any deficiency of energy and activity.

It may also be of interest for me to mention that our kinsmen across the Atlantic fully appreciate the advantages and importance of technical Insurance training. In several of the important centres like New York, Boston, Philadelphia, Chicago, and San Francisco there exist Insurance Societies who hold periodical meetings similar to those held by our Institutes here, where papers are read and matters of interest discussed. In addition to these, however, I find that the subject of Insurance is one to which greater importance is attached by the public Educational Authorities than in this country.

The serious fire waste which occurs on the North American Continent no doubt brings Fire Insurance closely under the public eye and makes it appear worthy of scientific study. I find that at certain Universities of the United States, including Yale and Harvard and the other most important ones, a full course on Fire Insurance principles and practices is given. At the Armour Institute of Technology also there is a very complete course on Fire Insurance given.

From particulars I have seen it would appear that the subject is dealt with very exhaustively, the principles and methods of Foreign Fire Insurance practice being dealt with as well as those of the United States. Life Insurance also is a subject which is dealt with fully at many of the American Universities.

But I do not think that it is necessary for me, at all events on an occasion like the present, to further enlarge upon the useful work of the Federation. It is important, and I believe

thoroughly recognised, that as time goes on, it will be necessary for us to widen the subjects with which the Federation deals. The Insurance profession cannot afford to be indifferent to the advantages or necessities of extended educational facilities if it is to attain its highest level of efficiency—and surely we do aim at such a standard—and raise our status in the economy of commercial life. Insurance is a necessity of modern life—business and domestic—and we must aim at securing the confidence of the community by showing our capacity for adapting our methods to their needs and performing our functions with efficiency.

These reflections bring me back to what I have already referred—our indebtedness to those who did the pioneers' work, first with Local Institutes and afterwards in the Federation. It would be invidious to select for special mention the names of those who are specially prominent in my mind in connection with Institute work, but, as one who has only recently taken part in Institute matters, I feel I ought to make an exception in the case of Mr. Bentley and Mr. Ostler, both of Manchester, who are entitled to be regarded as the Fathers of Institutes, and who still, notwithstanding their many years of arduous work, are as keenly interested and enthusiastic as ever.

In the Federation Journal, of which ten volumes have now been published, will be found a collection of valuable papers replete with information, and by which knowledge, the result of many years of hard work, is placed at the disposal of the members; but this is not all, as other papers covering a wide range of subjects have also been printed and circulated by various local Institutes, and are valuable as text-books for students, to whom they are always accessible.

In Liverpool, as elsewhere, our Institute is devoting a considerable amount of time and trouble towards the establishment of a valuable Insurance Library, and I would suggest whether the present is not an appropriate time to revive the project of a Central Library of Reference, where members could obtain all the standard works on Insurance.

Then, looking at our aims and objects from a public point

of view, I think we may claim to confer important advantages on the community at large. Though it is not an essential object of Insurance Companies to reduce fire hazard, the indirect effect of study and training made possible by Institutes is to reduce the hazard and so benefit the community. Experts in Automatic Fire Extinguishers and Electrical and other Fire Alarms, for instance, spend their time in devising means of preventing fire waste. Sound knowledge enables us to adjust our rates so that the features which are most hazardous are penalised, thereby influencing property owners to reduce the fire risk.

The importance of this is self-evident, because, notwithstanding the general advance in science and knowledge generally, the means for the prevention and spread of fire have not kept pace with the changing conditions of modern times. In some directions the fire waste has been reduced by the instrumentality of modern devices such as the Automatic Sprinkler, but despite these the aggregate fire waste, as indicated by Insurance Companies' balance sheets, is still enormous. Among other factors we have the increasing size of buildings, the greater congestion in cities, and a consequent aggregation of large values in small areas with a resulting increase in the conflagration hazard. The readjustment of rates, following a careful study of the new conditions and of past experience, tend to operate to reduce the fire waste, *e.g.*, by encouraging the erection of buildings specially designed to resist fire, provided with fire-proof doors and shutters, good party walls, and generally the sub-dividing of property into separate risks, so lessening the possibility of large fires.

The most important feature of the social side of our Federation I have left to the last. I refer to the Insurance Orphanage which was established in 1902, and regarding which we learn from the reports, is steadily extending its charitable usefulness year by year. This most deserving charity has so many friends and so many zealous supporters that its claims to hearty support meet with generous response. There will be an opportunity later in the day for

the cause being pleaded with eloquence, so I will leave this noble charity in abler hands.

Looking back 40 years, I find great changes in the conduct and development in all branches of Insurance business, and I am led to wonder what the future has in store for us. If left alone and allowed to continue our operations on lines which have been satisfactory to the public and profitable to our shareholders, there would appear to be no limit to the development of our operations. To veterans like myself the future has not the same interest as the present, and while we wish the younger generation every success, and our Companies greater prosperity than we have succeeded in attaining, it is possible that our successors may be confronted with new and difficult problems should the Government or public authorities decide to undertake Insurance business in all or any of its branches. Possibly the work which our Institutes are doing may have some influence for good when what is now only a suggestion, takes definite shape, and the knowledge which our younger members are acquiring by the aid of our Local Institutes cannot fail to cause the aims and objects of Insurance Companies being better understood and appreciated.

After completion of the usual routine business for the year arising out of the various reports,

It was moved by Mr. OWEN, seconded by Mr. BOOCOCK, and resolved—"That the name or title of the Society be changed "from the present name or title to 'THE INSURANCE INSTITUTE OF GREAT BRITAIN AND IRELAND.'"

It was moved by Mr. ROGER OWEN, seconded by Mr. PIPKIN, and resolved—"That in lieu of the Constitution of the "Society agreed to on the 12th of June, 1903, the Articles "of Association now submitted to this meeting and signed "for identification by the Chairman thereof, be and the same "are hereby adopted to the exclusion of all other regulations "as being the Constitution and the Regulations of the "Society."

INSURANCE CLERKS' ORPHANAGE.

REPORT OF THE GENERAL COMMITTEE TO THE SIXTH ANNUAL GENERAL MEETING OF MEMBERS, TO BE HELD AT THE REGISTERED OFFICE OF THE INSTITUTION, 65 WATLING STREET, E.C., ON WEDNESDAY, THE 22ND DAY OF JULY, 1908, AT 5 O'CLOCK P.M.

THE General Committee have much pleasure in submitting their Sixth Annual Report to the members of the Orphanage, together with Account and Balance Sheet made up to the 31st March, 1908.

The total income for the year was £2,402 11s. 6d., being an increase of £91 8s. 2d. upon that of the previous year.

The expenditure was £782 6s. 6d., being £667 5s. for grants and £115 1s. 6d. for working expenses. The surplus of the year was £1,620 5s.

In accordance with the Articles of Association, the sum of £808 3s. 4d., being the amount of Life Members' Subscriptions and Donations of £20 and upwards, has been added to the Capital Account, bringing it up to £8,890 19s. 11d., and the remainder of the surplus, £812 1s. 8d., has increased the Revenue Fund to £4,971 19s. 8d., leaving the Institution with total Funds of £13,862 19s. 7d., as compared with £12,242 14s. 7d. at the end of the previous year.

Life Membership Subscriptions of £93 9s. were received from 17 new Life Members, and from 12 Annual Members who had decided to commute their payments. Annual Members contributed £877 10s. 6d., of which £87 6s. 6d. represents the subscriptions of 322 new Members, the balance being renewed subscriptions.

During the year 339 new Members were admitted, and the total membership stands at 2,733.

It is gratifying to record that the number of entertainments and other social functions either held on behalf of the Orphanage,

or at which the Orphanage is brought under notice, shows a considerable increase. Besides yielding substantial help, the General Committee feel that these gatherings are extremely useful in keeping the Institution prominently before Insurance officials throughout the country, and they gratefully acknowledge the following contributions :—

Belfast Orphanage Committee Smoking Concert ...	£14	14	0
Birmingham Insurance Smoking Concert	23	15	0
Bristol Orphanage Committee Smoking Concert ...	19	0	0
Commercial Union Assurance Company's Staff Smoking Concert	20	11	9
Dublin Orphanage Committee Smoking Concert ...	15	10	0
General Accident, Fire & Life Corporation, collection at Staff Dinner	5	0	0
Insurance Institute of London Smoking Concert ...	23	18	0
Liverpool Insurance Institute Smoking Concert ...	39	3	7
Newcastle Insurance Institute Whist Drive ...	22	0	9
North British & Mercantile Insurance Company's Staff Smoking Concert	4	6	8
Norwich Union Fire Office Dramatic Society ...	30	2	6
Yorkshire Insurance Company's Staff Smoking Concert	23	4	6

The names of seven Companies are added to the List of Contributors :—The British Law Fire Insurance Company, The Gresham Life Assurance Society, The Law Guarantee Trust and Accident Society, and The Law Union & Crown Insurance Company, £100 each ; The Yorkshire Insurance Company, £50 ; The King Insurance Company, £25 ; and The Equity & Law Life Assurance Society, an annual contribution of £10 10s.

Since the closing of the books, further Donations of £100 have been received from the Fine Art & General Insurance Company, and £29, making a total contribution of £50, from the State Fire Insurance Company.

The following are the Companies which have contributed to the Orphanage, including the last two which will appear in the current year's accounts :—

Alliance Assurance Company	£100
Atlas Assurance Company	100
British Law Fire Insurance Company, Limited ...	100
Caledonian Insurance Company	100
Commercial Union Assurance Company	100
County Fire Office	100
Fine Art & General Insurance Company	100
Gresham Life Assurance Society	100

Guardian Assurance Company	£100
Law Guarantee Trust & Accident Society, Limited	100
Law Union & Crown Insurance Company	100
Liverpool and London and Globe Insurance Company	100
London & Lancashire Fire Insurance Company ...	100
Northern Assurance Company	100
Norwich Union Fire Insurance Society	100
Norwich Union Mutual Life Insurance Society ...	100
Ocean Accident & Guarantee Corporation, Limited	100
Phoenix Fire Office	100
Provident Life Office	100
Royal Exchange Assurance	100
Scottish Union & National Insurance Company ...	100
Sun Fire Office	100
Union Assurance Society	100
Westminster Fire Office	100
State Fire Insurance Company	50
Warsaw Fire Office	50
Yorkshire Insurance Company	50
Essex & Suffolk Equitable Fire Insurance Company	26 5s.
King Insurance Company, Limited	25
Equity & Law Life Assurance Society (per annum)	10 10s.

In addition to the foregoing, the General Committee thankfully acknowledge personal contributions from Directors of various Offices. With a view of receiving further support from both these sources, the Committee earnestly hope that Managers of Companies who may not have done so hitherto will bring the claims of the Institution, and the good work it is doing, to the attention of their respective Boards.

The sum of £1,411 19s. 6d. was invested during the year, making the total investments of the Orphanage at cost £13,307 11s. 4d., as against a market value, on 31st March, 1908, of £12,940 6s. 6d.

In the course of the year 7 children were admitted to the benefits of the Orphanage and 2 were withdrawn, one, a boy (for whom a situation was found), on attaining the age limit, and the other, a girl, upon the re-marriage of her mother.

At the 31st March last, the General Committee were making grants in respect of 29 children.

A short summary of the cases is appended.

Whilst the steady progress of the Institution is a matter for satisfaction, the General Committee feel strongly that this progress should be more pronounced, and that a greater measure of support should be forthcoming from members of the Staffs of Offices.

The General Committee tender their hearty thanks to the members of the respective Local Committees and to the Collectors in the various Offices, to whose energy the present position of the Institution is largely due.

The General Committee also tender their acknowledgments to the Honorary Auditors for their services, to the Committee of the London Salvage Corps for the free use of their premises, and to the Insurance Press for gratuitous advertisements and publication of information respecting the Orphanage.

The following members of the General Committee retire in accordance with the Articles of Association, and, being eligible, offer themselves for re-election, viz.:—Messrs. A. D. Besant, G. E. Mead, Samuel J. Pipkin, J. B. Roberts, E. E. Westmacott, H. E. Wilson, and F. W. P. Rutter.

The retiring Auditors, Messrs. Price, Waterhouse & Co., have again kindly offered their services without fee, and will be submitted for re-election.

The General Committee submit with much pleasure a proposition that Mr. E. Baumer, late Manager and Secretary of the Sun Insurance Office, be elected a Vice-President of the Orphanage, and that Mr. G. E. Mead, the present Secretary of the "Sun," be elected a Member of the General Committee. It will be remembered that Mr. Baumer retired from official life at the close of 1907, but he still maintains an active interest in the affairs of the Institution, which he has supported from its foundation; and, in proposing to pay him the only compliment in their power, the General Committee express the hope that they may continue to receive his valuable assistance and advice.

SAML. J. PIPKIN, *Chairman.*

25th June, 1908.

THE FOLLOWING STATEMENT SHOWS THE PROGRESS OF THE ORPHANAGE:—

Year ending 31st March.	Number of Members.	SUBSCRIPTIONS AND DONATIONS, &c.						EXPENDITURE.		Balance at end of each year—Capi- tal and Revenue. £		
		Life Members. £	Donations of £20 and upwards. £	Total to Capital. £	Annual Members. £	Donations under £20 and Sub- scriptions. £	Interest. £	Total to Revenue. £	Total of all Income. £		Grants. £	Working Expenses. £
1903	2,007	3,412	1,009	4,421	629	411	24	1,064	5,486	8	221	5,256
1904	2,304	531	922	1,453	683	169	138	990	2,443	72	125	7,503
1905	2,527	143	438	581	719	139	205	1,063	1,645	118	145	8,885
1906	2,604	166	523	689	771	209	266	1,246	1,935	219	43	10,557
1907	2,626	75	862	937	746	272	355	1,373	2,311	528	97	12,243
1908	2,733	93	715	808	877	341	376	1,594	2,402	667	115	13,863

INSURANCE CLERKS' ORPHANAGE.

INCOME and EXPENDITURE ACCOUNT for the Year ending 31st MARCH, 1908.

INCOME.		EXPENDITURE.	
To Balance brought forward from last Account	£4,159 18 0	By Transfer to General Capital Account in accordance with the Articles of Association of the Orphanage	£808 3 4
„ Subscriptions from Life Members ...	£93 9 0	„ Working Expenses, Stationery, Printing, Postages and Petties, &c.	115 1 6
„ Donations of £20 and upwards ...	239 14 4	„ Grants	667 5 0
„ Donations from Insurance Companies	475 0 0	„ Balance carried to Balance Sheet	4,971 19 8
„ Annual Subscriptions from Members	£877 10 6		
„ Donations under £20	340 16 11		
„ Interest on Investments and on Money on Deposit	376 0 9		
	1,594 8 2		
	<u>£6,562 9 6</u>		<u>£6,562 9 6</u>

BALANCE SHEET, 31st MARCH, 1908.

To General Capital Account as at 31st March, 1907				By Investments at cost:—			
...	...	£8,082	16 7	£500 2½ per Cent. Consols	...	£5,055	7 5
Add Amount received during the Year, being Life Subscriptions, and Donations of £20 and upwards	...	808	3 4	£1016 16s. Birmingham Corporation 3 per Cent. Stock	...	1,001	2 3
				£500 London County 3 per Cent. Consolidated Stock	...	465	7 3
Balance of Income and Expenditure Account	...	£8,890	19 11	£500 Middlesex County 3½ per Cent. Stock, 1927-1947	...	485	1 0
Outstanding Accounts	...	...	4,971 19 8	£500 Metropolitan Water Board (B) Stock, 1934	...	444	8 6
			...	£1500 Cape 3½ per Cent. Inscribed Stock	...	1,436	8 0
			30 13 2	£1300 Natal 3½ per Cent. Consolidated Stock	...	1,253	2 0
				£500 New South Wales 3½ per Cent. 1918 Stock	...	481	18 6
				£500 New South Wales 3½ per Cent. New Inscribed Stock, 1930-1950	...	498	3 6
				£500 Great Central and Midland 3½ per Cent. Guaranteed Stock	...	518	16 11
				£500 Great Western and Great Central 3½ per Cent. Guaranteed Stock	...	482	10 0
				£500 London, Brighton & South Coast Railway 5 per Cent. Consolidated Preference Stock	...	697	18 3
				£500 North-Eastern Railway 3 per Cent. Debenture Stock	...	487	7 9
				Cash at Bank, Current Account	...	£13,307	11 4
				Cash at Bank, Deposit Account	...	£283	10 10
				Cash in hand	...	300	0 0
					...	210	7
						586	1 5
						£13,893	12 9

AUDITORS' CERTIFICATE AND REPORT.—In accordance with the provisions of the Companies Act, 1900, we certify that all our requirements as Auditors have been complied with.

We have examined the above account of Income and Expenditure for the year ended 31st March, 1908, and the Balance Sheet as at that date with the books and vouchers of the Institution, and report to the Members that in our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Institution's affairs, as shown by the books.

We have verified the Investments appearing in the Balance Sheet.

29th May, 1908.

PRICE, WATERHOUSE & CO., Auditors.

PARTICULARS OF CASES RECEIVING THE BENEFITS OF THE INSURANCE CLERKS' ORPHANAGE
ON 31st MARCH, 1908.

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Admitted.	Sex.	Born.	Father.
March 11th, 1903	Boy	December 6th, 1896	Clerk, Sun, London.
July 8th, 1903	Girl	March 19th, 1895	Clerk, Westminster Fire, London.
June 8th, 1904	Boy	May 13th, 1898	Clerk, Westminster Fire, London.
February 9th, 1905	Boy	October 25th, 1896	Clerk, N. B. & M., London.
November 8th, 1905	Girl	March 19th, 1895	Clerk, Norwich Union Life, Bristol.
November 8th, 1905	Girl	September 7th, 1898	Clerk, Norwich Union Life, Bristol.
December 13th, 1905	Boy	January 6th, 1897	Inspector, County Fire, London.
December 13th, 1905	Boy	November 16th, 1898	Inspector, County Fire, London.
December 13th, 1905	Girl	March 2nd, 1896	Clerk, Alliance Marine, Liverpool.
December 13th, 1905	Boy	February 6th, 1899	Clerk, Alliance Marine, Liverpool.
December 13th, 1905	Boy	August 27th, 1897	Clerk, Alliance Marine, Liverpool.
March 14th, 1906	Boy	January 30th, 1900	Inspector, County Fire, London.
May 9th, 1906	Boy	November 6th, 1896	Branch Manager, Com. Union, Belfast.
May 9th, 1906	Girl	May 31st, 1895	Branch Manager, Com. Union, Belfast.
May 9th, 1906	Girl	July 18th, 1896	Clerk, Plate Glass Insurance Co., London.
May 9th, 1906	Boy	September 15th, 1898	Clerk, Plate Glass Insurance Co., London.
May 9th, 1906	Boy	January 6th, 1900	Clerk, Sun, London.
September 12th, 1906	Girl	September 29th, 1895	Clerk, Phoenix, London.
November 14th, 1906	Boy	July 18th, 1896	Local Secretary, Gresham Life, Liverpool.
November 14th, 1906	Girl	July 28th, 1899	Local Secretary, Gresham Life, Liverpool.
November 14th, 1906	Girl	November 11th, 1900	Local Secretary, Gresham Life, Liverpool.
March 20th, 1907	Boy	November 29th, 1899	District Manager, State Fire, Leeds.
April 24th, 1907	Boy	March 13th, 1901	Clerk, County Fire, London.
June 17th, 1907	Boy	May 31st, 1901	Clerk, Westminster Fire, London.
July 25th, 1907	Girl	June 29th, 1900	Claims Assessor, United Legal Indemnity, London.
September 26th, 1907	Boy	February 14th, 1899	Clerk, Gresham Life, London.
November 27th, 1907	Girl	April 18th, 1898	Surveyor, Atlas, Manchester.
November 27th, 1907	Girl	September 30th, 1901	Clerk, Phoenix, London.
February 19th, 1908	Boy	June 30th, 1901	Branch Manager, Com. Union.

Articles of Association

OF

THE INSURANCE INSTITUTE OF GREAT BRITAIN AND IRELAND.

1. The name of the Association is "THE INSURANCE INSTITUTE OF GREAT BRITAIN AND IRELAND."

2. The Office of the Institute will be situate in England.

3. The Objects for which the Institute is established are :—

(a) To encourage the study of all subjects bearing on every branch of Insurance.

(b) To publish a Journal and any other matter deemed desirable by the Council.

(c) To form a Library for the use of members of the Institute.

(d) To offer money or other prizes for essays or research in any subject bearing on Insurance.

(e) To devise means for testing the qualifications of candidates for the certificates of the Institute by examination in theory and practice or by any other actual and practical tests, and to grant certificates of qualification to the successful candidates.

(f) To promote personal and friendly intercourse between members of the Institute; to hold conferences and meetings for the discussion of professional affairs, interests and duties, the reading of papers, and the delivery of lectures; to compile records of events and proceedings of interest to the members, to issue copies of such lists, registers, and records from time to time to members of

the Institute, and generally to collect, collate, and publish statistical or other information of service or interest to members of the profession.

- (g) To ascertain the law and practice relating to all things connected with Insurance, to collect and form a strong body of expert opinion with the view of codifying and amending the Acts relating to joint stock Insurance Companies, and to watch any legislation affecting the same.
- (h) To promote the interests and welfare of the members, to further their advancement, and to promote whatever may lead to the improvement of the status of Insurance officials in general and the members of the Institute in particular.
- (i) To act as a means of communication between members or others seeking engagements and employers desirous of employing them.
- (j) To assist necessitous members, and the widows and children and relatives of deceased members, and to act as treasurer and distributor of any benevolent fund or funds which may be contributed by members, and to make any contribution to any such fund or funds out of the surplus income or assets of the Institute.
- (k) To purchase, rent, lease, hold, and dispose of any building or hall to be used as a place of meeting for the members of the Institute, or as a college, lecture, or reading rooms or library, or for social purposes, or any other property, real or personal, for the advancement of the above objects or any of them.
- (l) To promote and encourage provision against the contingencies of age, sickness, misfortune, and death, and to assist with means towards such provision.
- (m) To apply or petition for or promote any Act of Parliament, Royal Charter, or other authority with a view to the attainment of the above objects, or any of them, in this country or in any of the Colonies or Dependencies of Great Britain.

Provided that in case any gift or property taken by the Institute shall be taken upon special charitable trusts, and not for the general purposes of the Institute, or, for any other cause, shall be in the nature of such charitable trust or endowment as to be subject to the jurisdiction of the Charity Commissioners, the Institute shall observe all rules and regulations of the Charity Commissioners with respect thereto, and shall, if required by them, vest such property in special trustees thereof.

4. The income and property of the Institute, whencesoever derived, shall be applied solely towards the promotion of the objects of the Institute, as set forth in Clause 3 hereof, and no portion thereof shall be paid or transferred, directly or indirectly, by way of dividend, bonus, or otherwise howsoever by way of profit to the members.

Provided that nothing herein contained shall prevent the payment in good faith of interest on any loan advanced by or due to members of the Institute to promote its objects, or of remuneration to any officer or servant or to any member of the Institute, in return for any services actually rendered to the Institute, or undertaken by its authority to promote the objects of the Institute.

5. If upon the winding up or dissolution of the Institute there remains, after the satisfaction of all its debts and liabilities, any property whatsoever, the same shall not be paid to or distributed among the members of the Institute, but shall be given or transferred to some other Institution or Institutions having objects similar to the objects of the Institute, to be determined by the members at or before the time of dissolution, or in default thereof by such Judge of the High Court of Justice as may have or acquire jurisdiction in the matter.

6. The following persons shall be deemed to have become members of the Institute, viz. :—

(1) The parties to these presents, and

(2) All such other persons as (a) shall have been elected or admitted to be members in accordance with the regulations hereinafter contained or any bye-laws made in pursuance of such regulations, and (b) shall, by writing, under their respective hands in such form as shall from

time to time be approved by the Council, have agreed to be bound by the regulations for the time being constituting the Articles of Association of the Institute, and (c) shall have paid the proper entrance fee, if any.

CLASSES OF MEMBERS.

7. The Institute shall consist of Members, Honorary Members, and Corresponding Members.

MEMBERS.

8. Members shall be—

- (a) Those persons who are or shall become members of such Local Insurance Institutes as shall contribute annually to the Funds of the Institute such a proportion of their annual subscriptions as the Annual Conference may from time to time decide.
- (b) Also such persons as may be elected under Article 54 hereof.

HONORARY MEMBERS.

9. Honorary Members shall be those who may be deemed worthy of the distinction and likely to promote the objects of the Institute, and are duly elected by the Annual Conference of the Institute on the recommendation of the Council. The names of Honorary Members shall be published in the Journal of the Institute, during the pleasure of the Council.

CORRESPONDING MEMBERS.

10. Every person from time to time who is resident out of the United Kingdom, and who is professionally engaged as a secretary, manager, assistant secretary, assistant manager, actuary, assistant actuary, underwriter, or average adjuster of an Insurance Company duly constituted according to the law of the State in which such Company carries on its business, shall be eligible as a Corresponding Member on such conditions as the bye-laws, to be made by the Institute, may prescribe, but shall cease to be a Corresponding Member on it being shown to the satisfaction of the Council that he is no longer resident out of the United Kingdom.

FELLOWS AND ASSOCIATES.

11. The Institute may confer the rank of Fellow or Associate on any of its members or Honorary Members, as follows:—

- (a) Fellows shall be such persons as may be elected as such at the Annual Conference from amongst (1) those members who have qualified under the higher standards of the full curricula of education prescribed by the Institute; and (2) from amongst Members or Honorary Members.
- (b) Associates shall be such persons as may be elected as such at the Annual Conference from amongst (1) those members who have qualified under the minor standards of the full curricula of education prescribed by the Institute; and (2) from Members or Honorary Members.
- (c) Honorary Members elected as above to the rank of Fellow or Associate shall be styled Honorary Fellows or Honorary Associates.
- (d) The elections to Fellowship and Associateship shall take place at the Annual Conference on the nomination of the Council, and shall be granted by a vote of not less than three-fourths of the members present and entitled to vote. One month's notice shall be given by the Council to each Local Institute of the name of every candidate proposed for election to a Fellowship or Associateship.
- (e) The elections to Fellowship and Associateship during each year shall be published in the Journal of the Institute, and an asterisk shall be placed against the name of each who has qualified by examination.

ORIGINAL MEMBERS.

12. The following are the Local Institutes, whose members shall become members of the Institute as soon as such Institutes respectively shall have complied with the provisions of Article 8, viz. :—

The Belfast Insurance Institute.

The Birmingham Insurance Institute.

The Insurance Institute of Bristol.

The Insurance Institute of Cardiff.
 The Insurance Society of Edinburgh.
 The Insurance and Actuarial Society of Glasgow.
 The Insurance Institute of Ireland.
 The Insurance Institute of Liverpool.
 The Insurance Institute of London.
 The Insurance Institute (Manchester).
 The Insurance Association of Manchester.
 The Insurance Institute of Newcastle-upon-Tyne.
 The Norwich Insurance Institute.
 The Nottingham Insurance Institute.
 The Insurance Institute of Yorkshire,

who, together with other Institutes (if any) whose application for registration of its members as members of the Institute may, from time to time, be granted under the next succeeding clause, are hereinafter called the "Local Institutes."

ADMISSION OF NEW LOCAL INSTITUTES.

13. The application of any other Local Institute for registration of its members as members of the Institute shall be submitted to the Annual Conference, and may be granted by the votes of not less than three-fourths of the members present and voting thereat.

AFFILIATED INSTITUTES.

14. Insurance Institutes established in any of the Colonies or Dominions of the British Empire or in any foreign country may be affiliated with the Institute on such terms and conditions as may be provided by the Articles and Bye-laws of the Institute. The members of such affiliated Institutes shall have such privileges and advantages as are conferred by the Bye-laws, but shall have no control in the management.

COLONIAL INSTITUTES.

15. The following Colonial Institutes are hereby affiliated with the Institute :—

The Insurance Institute of Montreal.
 The Insurance Institute of New Zealand.
 The Insurance Institute of South Africa,
 The Insurance Institute of Toronto.
 The Insurance Institute of Victoria.

AFFILIATION OF COLONIAL OR FOREIGN INSTITUTES.

16. The application from any Colonial or Foreign Institute for affiliation shall be submitted to the Annual Conference, and shall be granted by the votes of not less than three-fourths of the members present and voting thereat.

EXAMINATIONS.

17. Subject to the provisions of the Constitution and Bye-laws, and for the purpose of promoting the objects of the Institute, the Council shall cause Examinations to be held at such times and places as it may think fit, and shall prepare and publish Rules to regulate such Examinations and to define the cases and circumstances under which the said Examinations shall severally apply, the subjects which they shall respectively comprise, the fees, if any, which shall be paid or deposited by candidates in respect of such Examinations, and the nature of the certificates or other distinction, if any, to be granted to successful candidates at home, in the Colonies, or abroad. It may vary or rescind from time to time any of the said Rules of Examination or add thereto, in any such manner as it may think fit, and may delegate to any Committee such power and instructions as may be necessary to carry out these objects.

AGE.

18. No person who has not attained the age of seventeen years shall be eligible as an Associate of the Institute, and no person who has not attained the age of twenty-one years shall be eligible as a Fellow of the Institute.

DECISION OF ANNUAL CONFERENCE ON QUALIFICATIONS.

19. The Annual Conference shall alone have power to decide respecting each person proposed for admission as a Fellow, Associate, Honorary Member, or Corresponding Member, whether he has or has not fulfilled such conditions as are required by these Articles or as prescribed by bye-laws.

SUBSCRIPTIONS.

20. The members' subscription to the Institute shall be fixed from year to year by the Annual Conference in June, and shall,

in the case of members who are members of one of the Local Institutes, be payable by the Treasurer for the time being of each of the several Local Institutes which contribute to the funds of the Institute.

21. The Annual Conference shall also fix the subscription to be paid by such members of the Institute as may be enrolled under the provisions of Article 54 hereof.

22. All subscriptions specified in the two foregoing Articles are for the period from the date of the Annual Conference in one year to the date of the next Annual Conference, and are due and payable within three months of the date when levied by the Annual Conference. Colonial or Foreign Institutes affiliated with the Institute shall be charged an annual subscription to be determined by the Council, and shall be entitled to one copy of the "Journal" for each member at the same price as is charged to the members of Local Institutes, plus the cost of carriage.

REGISTERED ADDRESSES OF MEMBERS.

23. Each of the Local Institutes enumerated in Article 12 hereof shall forthwith, and every other Institute whose request for admission of its members as members of the Institute shall be granted under Article 13, shall within thirty days of such request being granted furnish to the Institute a list of the names and addresses of its members. Every member, not being a member of a Local Institute, shall on admission and from time to time deliver to the Secretary a statement in writing of the address to which he desires that communications may be addressed to him, hereinafter called his "registered address," and such address shall, in the case of a Fellow or Associate, be within the United Kingdom.

RIGHTS OF MEMBERS.

24. All members of the Institute shall, subject to any restrictions which may be imposed by bye-laws or regulations, be entitled to be present at the Annual Conference and at all General Meetings of the Institute, and to take part in the discussion of business thereat, but no member shall be entitled to vote as such at such meetings otherwise than as regulated by the provisions of Article 48.

CESSER AND DETERMINATION OF MEMBERSHIP.

25. Any member who shall be liable for the same and shall, for six calendar months after the same shall have become payable, have failed to pay his annual subscription, and any member who shall in any other respect have committed a breach of any regulation or bye-law for the time being in force, shall, upon the Council passing a resolution to that effect by a majority of not less than two-thirds of those present and voting, cease to be a member, without prejudice nevertheless to the right of the Institute to recover from such member any arrears of subscriptions or other moneys payable by him to the Institute under the regulations or bye-laws.

26. Any member, providing he is under no liability to the Institute, shall be entitled to resign his membership on giving notice in writing of his intention so to do. No notice received after the thirty-first December in any year shall relieve a member from his liability to pay the annual subscription for the ensuing year.

27. The members of the Institute shall have power by resolution of a General Meeting, summoned for that special purpose, to expel any Member, Honorary Member, or Corresponding Member from the Institute who may, in the opinion of the majority of members present at such meeting, have been guilty of any dishonourable or improper conduct affecting his professional status, or his status as a member of the Institute, and thereupon such member shall cease to be a member of the Institute.

28. If any person from any cause whatever ceases to be a member of the Institute he shall not nor shall his representatives have any interest in or claim against the funds or property of the Institute.

MANAGEMENT OF THE INSTITUTE.

29. The affairs of the Institute shall be managed by a Council. The Council shall consist of two members of each of the Local Institutes named in Article 12, and of any other Local Institute which may conform to Article 8 hereof, to be elected annually by such Local Institute respectively, and of the officers of the Insti-

tute as set out in Article 30. The two members of each Local Institute elected to the Council shall hold office from the opening of the Annual Conference in each year to the opening of the Annual Conference in the year succeeding their election. Notification, in writing, of the election of their representatives on the Council for the ensuing year, and of two persons (who may or may not be their representatives on the Council), either of whom may vote on their behalf at the Annual Conference and at all meetings of the Institute for the ensuing year, and shall be called their "voting representatives," shall be given by each Local Institute to the Secretary not later than seven days before the Annual Conference, and until such notification is given such Local Institute shall not be entitled to be represented on the Council or to vote at any Annual Conference or General Meeting.

OFFICERS OF THE INSTITUTE.

30. The officers of the Institute shall consist of a President, Vice-Presidents, an Honorary Treasurer, and the Honorary Secretaries of the Examination and Publications Committees, all of whom shall be *ex-officio* members of the Council and shall be elected at the Annual Conference. It shall be competent to the Council to delegate to any Committee the election of one or more of its number as Honorary Secretary or Secretaries to such Committee.

VACANCIES IN THE COUNCIL OR OFFICERS.

31. Any vacancy occurring amongst the officers, except the Hon. Secretaries of Committees, shall be filled up by the Council at a meeting specially summoned for that purpose, and the appointment so made shall continue in force until the next Annual Conference.

32. Any vacancy in the Council, or in the office of the voting representatives appointed by any Local Institute, caused by death, removal, or resignation, may be filled up by such Local Institute, and any member so appointed shall hold office till the opening of the Annual Conference immediately succeeding his election. Notification in writing of any appointment so made shall be given to the Secretary by such Local Institute, and until such notification shall have been received such appointment shall not have any validity.

MEETINGS OF COUNCIL.

33. The Council shall meet at such times and places as may, in the opinion of the President for the time being of the Institute, be required by the necessities of business to be transacted. Seven days' notice shall be given of all such meetings, unless in cases of special urgency, when meetings may be summoned on not less than forty-eight hours' notice.

34. The Council shall be called at any other time by the Secretary on a requisition from six or more members of the Council, and such requisition must state the object for which the meeting is requested. At such Special Meetings of the Council the only business which may be transacted will be that stated on the Notice as the special business for which the meeting has been called. Seven days' notice of such special meeting shall be given.

POWERS AND DUTIES OF COUNCIL.

35. It will be the duty of the Council to exercise control over, to assist and to direct the work of the Institute, and of all Committees, and to deal with all matters on which an immediate decision may be required in the interest of the Institute, and to report to the Annual Conference.

36. The Council shall have power to regulate their own procedure and to make provision for carrying out the objects of the Institute, and for conducting its affairs in accordance with these Articles of Association. The Council shall, subject to these Articles and subject also to any Bye-laws or Regulations passed at any Annual Conference which may for the time being be in force, have the sole control and management of the income, property, and affairs of the Institute, and may exercise all powers and do all such acts and things as may be exercised or done by the Institute. No member of the Council shall receive any remuneration.

37. In furtherance of and without prejudice to the general powers conferred by the last preceding Article, and of the other powers conferred by these presents, it is hereby expressly declared that the Council shall have the following powers:—

- (1) To pay the costs, charges, and expenses preliminary and incidental to the promotion, formation, and establishment

of the Institute, and all other costs, charges, and expenses properly incurred in respect thereof prior to the date of these presents.

- (2) To appoint, upon such terms and conditions as to them may seem fit, and to dismiss all paid officers of the Institute.
- (3) To purchase, or take a lease of, or rent any buildings for the purposes of the Institute, and to assign, sub-let, or surrender the same as circumstances may require.
- (4) To delegate, subject to such conditions, any of their powers to committees, consisting of two or more gentlemen, whether members of their own body or not, and to make such regulations as to the proceedings of such committees as may seem expedient.
- (5) To apply to or petition Parliament, the Privy Council, the Board of Trade, or any public department or authority, officer or body, in the name of the Institute.
- (6) To apply such portion or portions of the funds of the Institute as they may think fit towards forming and maintaining a Reserve Fund for the general purposes of the Institute.
- (7) To enter into such contracts and to do all such acts and things as they think expedient for the purposes of the Institute.

38. Meetings of the Council shall be summoned by the Secretary, under the direction of the President, a Vice-President, or of any three other members of the Council. Five members shall form a quorum, provided that they represent not less than three Local Institutes.

39. The Council shall at each Annual Conference present to the Institute a report on the position of the Institute, financial and otherwise, and on the affairs and proceedings of the Institute generally during the previous year.

40. The Council shall not exercise any authority or control over any Local Institute, except in matters directly relating to

the interests of the Institute, and if any question arise in connection with this Article, it shall be decided by resolution of the Council, to be passed by a majority of not less than three-fourths of those present and entitled to vote.

COMMITTEES.

41. The Council may appoint Committees and assign to them such duties as may be agreed, and the meetings of all Committees shall be called by the Secretary at such times and places as may be most convenient to the said Committees.

42. Committees shall, in the exercise of the powers delegated to them, conform to any resolution that may be passed by the Council, or by the Annual Conference, but shall in all other respects regulate their own procedure. The President shall be an *ex-officio* member of every Committee.

EXAMINERS.

43. The Examiners shall be appointed by the Annual Conference, but any casual vacancy during the year may be filled by the Council, who shall also have power to appoint additional or assistant examiners if they shall deem it desirable to do so.

ANNUAL CONFERENCE.

44. In every year a General Meeting of the Institute shall be held in the month of June at such place as may be decided by the Council from year to year. This meeting shall be called the Annual Conference.

45. Special General Meetings of the Institute shall be called within twenty-one days after the receipt of a requisition, in writing, therefor signed by, or on behalf of, not less than six Local Institutes.

46. The President of each Local Institute, all Past Presidents of the Institute or of the Federation, the Examiners for the time being of the Institute, the Founder of the Insurance Clerks' Orphanage, the Chairman for the time being of the Orphanage, the Honorary Secretary and Honorary Treasurer of the Local

Institute at which the Annual Conference is held, shall all be entitled to attend the Annual Conference.

47. At all meetings of the Council and at the Annual Conference and at all General Meetings of the Institute the Chair shall be taken by the President, or, in his absence, by one of the Vice-Presidents or by one of the Past Presidents, whom failing, the Chairman shall be elected from among those present.

48. All voting at meetings of the Council and at the Annual Conference and at General Meetings of the Institute shall be by Local Institutes, one vote only being allowed to each Institute, the President having a casting but not a deliberative vote.

PROCEEDINGS AT ANNUAL CONFERENCE.

49. Fourteen clear days' notice shall be given to each Local Institute, and to all members not being members of Local Institutes, of the Annual Conference and of all General Meetings of the Institute, and the Notice calling the meeting shall state the general nature of the business which is to be brought forward; but after the business stated in the Notice convening the meeting has been finished, it will be competent for any member, with the consent of the meeting, to introduce, for discussion only, any other business.

50. At the Annual Conference in June there will be submitted (1) the Report of the Council for the past year; (2) the Accounts for the year; (3) the Reports of the Examiners and of the Publications Committee and of any other Special Committees appointed by the Conference or Council with instructions to report to the Council for presentation to the Annual Conference.

51. Reports of all Committees to be submitted to the Council shall be printed and sent to the Honorary Secretaries of Local Institutes one clear week before the date of the Annual Conference.

52. The Examiners Committee shall submit to the Council for presentation to the Annual Conference in each year a printed report of its operations, including the results of the examinations, with recommendations for the examinations in the following year,

names of proposed examiners, and remuneration, if any, alterations in the syllabus, and any other suggestions connected with the examinations at home, in the Colonies, or abroad.

53. The Publications Committee shall submit to the Council for presentation to the Annual Conference in each year a printed report of its operations, with a list of proposed papers for the forthcoming volume of the "Journal," and any suggestions connected therewith.

CENSURE.

54. It shall be in the province of the Annual Conference to censure any Local Institute, or refuse its subscription provided under Article 8, should it have failed, in the opinion of the Annual Conference, to effectively assist in the promotion and maintenance of the objects of the Institute above set forth, or introduce any practice deemed to be inconsistent therewith, or otherwise infringe any part of these Articles, or the membership of which may be deemed to be no longer advantageous to the Institute, and to deprive it of the vote as defined in Article 48, and terminate the membership of the Institute held by its members; but any individual member of such Local Institute will be eligible for election by the Institute on such terms and conditions as the Annual Conference may determine, but such censure or deprivation shall only be effective if not less than one month's notice, in writing, shall have been given of the intention to propose such censure or deposition in the manner prescribed for giving notice of the Annual Conference, and if such censure or deposition shall be approved by the votes of not less than three-fourths of those present and entitled to vote.

QUORUM.

55. At all General Meetings of the Institute members representing not less than six Local Institutes shall constitute a quorum. At meetings of the Council five members shall form a quorum, provided that they represent not less than three Local Institutes.

BYE-LAWS.

56. The Annual Conference shall have power from time to time to make and alter such Bye-laws as may be found necessary

or advisable, but so that such Bye-laws shall not in any respect be repugnant to law, or inconsistent with the provisions of the Articles of Association for the time being.

57. No Bye-law or any alteration of any Bye-law shall be submitted to the Annual Conference (except by way of amendment to any such Bye-law or alteration proposed by the Council) which shall not first have been approved by the Council, and not less than two months' notice of the Council's intention to propose any Bye-law, or the alteration of any Bye-law, to any Annual Conference must be given in writing by the Secretary accompanied by copies of such proposed Bye-law or alteration to the Honorary Secretary of each Local Institute.

58. No Bye-laws or alteration of any Bye-law shall be effective unless the same shall have been sanctioned and approved by Special Resolution.

59. The purposes for which the Institute may in manner aforesaid, from time to time, make Bye-laws in addition to any purpose in any other of these Articles indicated, include the following :—

- (1) For regulating the election and admission of the several classes of members.
- (2) For regulating the amount and times of payment of entrance fees and other fees and subscriptions, or other sums to be paid by members.
- (3) For defining and regulating the privileges and benefits of the several classes of members, and of any affiliated Institutes or members thereof.
- (4) For prescribing the cases, circumstances, conditions, and manner in, and on which, a member may be excluded or suspended from membership.
- (5) For the use of the buildings of the Institute.
- (6) For regulating the appointment of Trustees, and their powers and duties, and the disposal of the moneys and property of the Institute.

- (7) And generally such Bye-laws as from time to time seem to the Institute requisite for the better execution and furtherance of the objects of the Institute.

PAID OFFICERS.

60. All paid officers shall hold their appointments at the will and pleasure of the Council.

61. The permanent paid officers shall consist of a Secretary and such other officers as the Council shall from time to time appoint.

62. The remuneration of each paid officer of the Institute shall be fixed from time to time by the Council and paid by the Treasurer.

SECRETARY.

63. It shall be the duty of the Secretary to attend regularly at the office of the Institute, and also at every meeting of the Institute and of the Council and Committees, to take minutes of the proceedings, and to read such minutes at the next meeting. He shall prepare, and cause to be issued, all notices to be sent to members. He shall conduct the correspondence of the Institute in accordance with the rules which may from time to time be laid down by the Council. He shall compile and revise lists and registers of members, shall compile records of events and proceedings of interest to members, shall send copies of such lists, registers, and records from time to time to members, and shall collect and collate information of service or interest to members. He shall obey the instructions of the Treasurer in all matters relating to finance, and perform such other duties as the Council shall assign to him.

64. The Secretary shall demand all payments and subscriptions as they become due. He shall keep such books and forms as the Council shall from time to time direct, and he shall, subject to the general control of the Council, have the superintendence and charge of all the minute books, letter books, lists, and registers belonging to the Institute. He shall keep the minute books of all meetings of the Institute, and of the Council and Committees.

ACCOUNTS AND AUDIT.

65. Six weeks at least before the day appointed for holding the Annual Conference, the Council shall appoint a paid Auditor, with or without two members of the Institute, not being members of the Council, who shall audit the Treasurer's accounts and balance sheet and report thereon to the Institute.

66. As soon after the audit as may be, and seven clear days before the Annual Conference, the Treasurer shall cause an abstract of the accounts of the Institute of the preceding year, ended 31st December, to be printed, and to be sent to each Local Institute in the same manner as notices are by these Articles directed to be sent.

NOTICES.

67. Any notice may be served by the Institute upon any Local Institute or upon any member by sending it through the post, prepaid, addressed to such Institute or member at their or his registered address. The registered address of any Local Institute or member, not being a member of a Local Institute, shall be such address within the United Kingdom as such Institute or member, not being a member of a Local Institute, may from time to time designate to the Secretary of the Institute in writing, and the registered address of each member shall be care of the Local Institute to which he belongs. No Local Institute or member of any Local Institute which shall have failed to furnish such address shall be entitled to receive any notice from the Institute.

68. Any notice sent by post to a Local Institute or member, not being a member of a Local Institute, shall be deemed to have been served at the time when the same would have been delivered in the ordinary course of the post, and in proving such service it shall be sufficient to prove that the notice was properly addressed and put in the post-office, and any notice sent to a member through the post at the registered address of his Local Institute shall be deemed to have been served upon him at the expiration of thirty-six hours after it is deemed to have been served on his Local Institute. The accidental omission to give any such notice shall not invalidate the proceedings at any Annual Conference or meeting of which such notice ought to have been given. No

Honorary or Corresponding Member shall be entitled as of right to any notice of any Annual Conference or Special General Meeting of the Institute, except in the case of a resolution being proposed for his expulsion, under Article 27, in which case he shall be entitled to fourteen days' notice of such resolution.

ALTERATION OF ARTICLES.

69. The Institute may at any Annual Conference, by Special Resolution, alter all or any of these Articles or of the regulations of the Institute for the time being, and make new regulations to the exclusion of, or in addition to, all or any of the regulations for the time being of the Institute, and the regulations so made and for the time being in force shall be deemed to be regulations of the Institute and of the same validity as if they had been originally contained in these presents, and shall be subject in like manner to be altered or modified by any subsequent Special Resolution.

70. No alteration or addition shall be made to the Articles of Association (except by way of amendment to any alteration proposed by the Council) which shall not previously have been approved by the Council, and at least two calendar months' previous notice in writing of any proposed alteration or addition must be given by the Secretary, accompanied by copies of such proposed alteration or addition, to the Honorary Secretary of each Local Institute.

71. No alteration or addition to the Articles of Association or regulations of the Institute for the time being shall be valid until sanctioned by Special Resolution.

INTERPRETATION.

72. In the interpretation of these presents, the following words and expressions have the meanings given unless excluded by the subject or context :—

- (a) "The Federation" means the "Federation of Insurance Institutes of Great Britain and Ireland," founded in Manchester, 12th March, 1897, and now merged in The Insurance Institute of Great Britain and Ireland.

- (b) "The Council" means the Council of the Insurance Institute of Great Britain and Ireland.
- (c) "The Annual Conference" is the Annual General Meeting of the Institute.
- (d) "Local Institutes" means the Insurance Institutes, Societies, or Associations by whatever name known, established in London or elsewhere in Great Britain and Ireland, which the Council may approve.
- (e) "Member" or "Members" means member or members of the Institute.
- (f) "The Office" means the principal office of the Institute.
- (g) "Month" means calendar month.
- (h) The masculine gender includes the feminine gender.
- (i) "Special Resolution" means a Resolution passed by a majority of not less than three-fourths of the members present and voting at any Annual Conference or General Meeting of the Institute.
- (j) "The Articles of Association" or "The Articles" mean these presents, or the regulations of the Institute for the time being.
- (k) "In writing" means written or printed, or partly written or partly printed.

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* * *For all statements made, and opinions expressed,
in the papers of this volume, the respective
writers are alone responsible.*

TUBERCULOSIS AND INSURANCE.

By J. G. EMANUEL, B.Sc., M.D., B.S., M.R.C.P. (Lond.), M.B.,
Ch.B. (Birm.).

*A Paper read before the Birmingham Insurance Institute,
22nd February 1907.*

It is my desire to ask your attention this evening to the relative parts played by heredity and infection in the dissemination of tuberculosis, and to bring prominently before you what I believe to be a fact, namely, that the important factor in the spread of consumption is not heredity but infection or contagion. Let me say at the start that whatever subtle differences have been attributed to the significance of the two words, infection and contagion, throughout this paper they are used as synonyms.

It seems to me that while the medical profession is occupying itself in teaching the public the all-importance of the infectious character of tuberculosis, the insurance world still only regards the hereditariness of the disease to the total disregard of its infectivity. The awakening of the public to the infectious character of phthisis is evidenced by the numerous methods it is adopting to prevent its spread, viz., by discouraging the all too prevalent habit of ubiquitous and I may say iniquitous expectoration, by inspection of slaughter-houses and the condemnation of meat from tuberculous cattle, by urging the boiling of milk, so often the means of conveying the germ to children in whose diet milk forms such an important factor, by the adequate ventilation of factories and of workshops, and by helping to prevent overcrowding in the poorer quarters of large towns and cities. In contrast to this, what is the action of insurance companies? If a luckless applicant for life insurance happens to have lost a near relative from consumption he is straightway looked upon as

doubtfully secure of the ordinary tenure of life, and may be the medical officer will have difficulty in passing him without a load. Yet another applicant whose parents and collateral relatives may show no taint of tuberculosis may be occupying the same room and even the same bed as a consumptive wife, may have living in his house one or more of his own children the victims of the disease, or may be working daily side by side with a highly infectious consumptive, but no questions are asked, he is allowed to pass as a first class life.

I have often put to myself the following question, Is an insurance company right in necessarily looking askance at an applicant with what is termed a tubercular family history, and in disregarding the risks of contagion to which the applicant may be exposed in his daily routine? I feel confident that insurance companies are right, for I know that their tables are compiled from extensive and reliable statistics that have stood the test of time. But though they arrive at a right and proper conclusion, they do so, it seems to me, by a wrong route, and I have been led to this view by an enquiry which considerably interested me, and which I thought might be of some little interest to you.

It is unnecessary to remind you that the cause of tuberculosis is a germ, a bacillus, discovered by Professor Koch of Berlin 25 years ago, in the year 1882. No individual is tubercular unless one of his organs has become a suitable nidus for the active growth of this micro-organism which is called the tubercle bacillus. This bacillus finds entry into our systems by one of two routes. Either we breathe it into our lungs and become the victims of pulmonary tuberculosis or consumption, or we eat or drink it, often in the form of unboiled milk from infected cows, just as we catch typhoid or cholera from an infected water or milk supply. When infection follows this second route—the alimentary route—the abdominal viscera, especially the mesenteric glands, are earliest and most affected, and the condition is often called “consumption of the bowels.” In adults the lung infection is immensely the more common route, in children lung infection is still more common than bowel infection, but bowel infection through the food is far more common than it is in adults.

Now, I should be exaggerating the purport of this paper were I to say that consumption is caught only by contact with another sufferer and is not inherited from the parent, but after all that is the trend of my paper. We recognise that scarlet fever, small-pox,

typhoid, cholera are infectious. We do not, however, think that because a parent died of one of these diseases their children are more liable to these diseases than the children of healthy parents. So with consumption, it is carried from one to another, sometimes from animals to man, *e.g.* by the milk of tuberculous cows, and because a man may die of consumption it does not necessarily follow that his children are more liable to consumption than the children of a healthy individual. Their liability to consumption depends upon their exposure to infection or contagion. Do not imagine I vaunt this view of the infectivity of consumption in any sense as a new theory. The contagiousness of consumption was recognised by Galen some 150 years before the Christian era, 131-200 B.C., for consumption is a very ancient disease. Hippocrates wrote a classical description of it 460-377 B.C. It was indeed the recognition of the contagiousness of consumption that led to the discovery of the cause of its contagiousness, viz., the tubercle of Koch. The discovery of the tubercle did not start the theory of contagion.

Shortly after Koch's discovery an attempt was made to settle the question, which was the chief factor in the production of tuberculosis, heredity or infection? A general enquiry was instituted in the United States, England, Germany, France, Italy, Holland, and Russia. But this joint investigation proved entirely unsatisfactory, briefly, I may say, because of the great difficulty of scientifically proving a case to be inherited and not the result of infection. For example, take the following case:— Both parents were consumptive, and their son as well; four brothers and sisters of the father, and seven brothers and sisters of the mother, including one married sister with her husband and fourteen children, all fell victims to the disease, so that the entire family became extinct. Now, is this a case of heredity? To me it certainly looks more like one of contagion, more like an epidemic disease like small-pox, passing from one member of the family to another. I shall not, however, attempt to draw any definite conclusion from this family, for, as will be seen later on, the necessary data for arguing in favour of heredity or contagion are not forthcoming. Yet such cases are unhesitatingly quoted in favour of heredity.

The difficulty of the positive proof of heredity is well-nigh insurmountable. We should require the records of many families in which several children of tubercular parents had succumbed to

tuberculosis in spite of early removal from their parents, and early separation from one another without the possibility of exposure to other sources of infection. It is quite obvious that such conditions are impracticable. Such restrictions can, however, be employed in the case of guinea-pigs and rabbits, and are most nearly approached in man in orphan asylums, and the results of these animal experiments and the records of orphan asylums, as will be mentioned later on, give no support to the hereditary doctrine.

The source of infection is difficult to locate. For the consumptive suffering only slightly from cough and expectoration—the early symptoms of the disease—for a considerable time passes as a healthy individual. Contrast this gradual and insidious onset of consumption with the acute onset of cholera, of scarlet fever, or of diphtheria, or with the subacute onset of typhoid or of syphilis. In all these diseases the individual very soon shows well-defined symptoms of illness, and so it does not become a matter of very great difficulty to trace the source of infection. But in tuberculosis often months, half a year, a year, and sometimes even a longer period elapses before the disease has attained such proportions as to attract attention. During this time the original source of infection is probably widely separated and may even have died.

In cholera and in typhoid the individual becomes attacked, as a rule, by drinking infected water or milk. The consumptive becomes attacked by inhaling the dried sputum of another victim. While such sputum remains moist there is no danger. It is only when it becomes dry that it can be disseminated and form a source of infection. This has been proved by experiment. In a large room, 250 cubic feet in capacity, dried tuberculous sputum was distributed upon a carpet, and a number of guinea-pigs were placed at various distances and heights from the carpet. The result was that of 48 animals thus exposed to the natural means of inhaling dried tubercular sputum, 47 showed the development of tubercles in the bronchial glands and in the lungs with partial cavity formation. In other experiments carried out under similar conditions, but in which precautions were taken to keep the sputum moist, so that its dissemination in the form of dust was prevented, the animals remained free from infection. Bacilli, as a rule, are found only where consumptives live, and only where they permit their expectoration to evaporate and dry. The micro-

organisms rapidly die on exposure to air and sunlight. Hence the importance of proper ventilation and lighting of our dwelling-rooms.

The frequency of tuberculosis is an interesting problem and can be readily calculated from the mortality returns. The general statistics of all countries in which accurate records are kept show that 1 in 7 of all ages die of tuberculosis. Last year in Birmingham the mortality was 1 in 8·7—1000 deaths from tuberculosis out of a total mortality of 8718; and in England and Wales it was 1 in 9—60,205 deaths from tuberculosis out of a population of 34,000,000, whose mortality was 16 per 1000. Surely it may be said that we live in a community of the tuberculous, whether we take the number as 1 in 7 or as 1 in 9. But let us carry our enquiry further. Granting the deaths from tuberculosis to be 1 in 9 (taking the figures for England and Wales) that would mean that out of a population of 34,000,000, with an annual mortality of 16 per 1000, the annual death-rate from tuberculosis would be approximately 60,000. Now, the average duration of the disease is three years, and so there would be 180,000 consumptives out of a population of 34,000,000, *i.e.* one tubercular to 194 non-tubercular. Nothnagel, working on the ratio of 1 in 7, and a population of 30,000,000 in Prussia, makes the proportion one tubercular to 141 non-tubercular, and these figures do not differ a great deal. This ratio, however, differs enormously according to age, and indeed according to sex as well. Thus :—

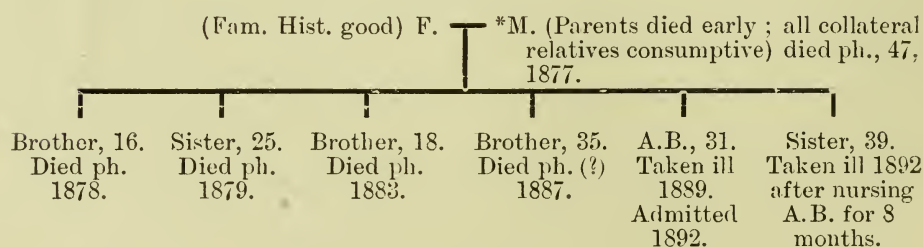
	Tubercular.		Non-tubercular.
Amongst boys of 5 to 10 years the ratio is	1	:	2179
Amongst youths of 15 to 20 years the ratio is - - - - -	1	:	200
Amongst men of 30 to 40 years the ratio is - - - - -	1	:	94
And amongst men of 60 to 70 years the ratio is - - - - -	1	:	43

Considering, then, the high mortality, the number of the tuberculous is not so alarming, and it must be remembered that these numbers include all cases of tuberculosis—tuberculosis of the lungs, of the abdominal organs, of the glands, and of the joints, and that it is only when the disease affects the lungs, and then only when the individual is actively expectorating, that there is any risk of infection.

The sources of infection may be variously subdivided. I shall consider them under various headings, and shall commence with the most familiar, viz., family infection.

Infection through the family naturally plays a great rôle in the dissemination of tuberculosis, especially among young people. And it is just such cases that has given strong support to the importance of heredity. But a careful investigation of family cases shows that they arise by infection carried by one member of the family to another and are in no sense the result of hereditary influence. Children hereditarily tainted tend to remain healthy when brought up in orphan or in foundling asylums. In many cases of phthisis among children the disease can be traced to the foster-parents or to the step-parents. Often the parents show the first signs of disease years after the birth of the child, and very often the parents and children fall victims at about the same time. A detailed consideration of a few of these cases will help to make these points clear.

CASE 1.



F = father.

Ph. = phthisis.

M = mother.

* = source of infection.

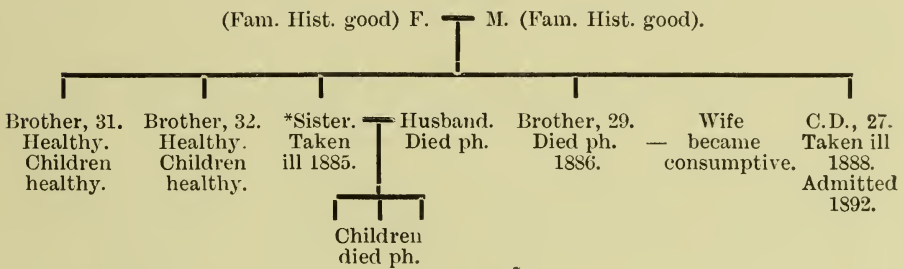
A.B., C.D., &c. = patients.

A. B., aged 31 years, was admitted into hospital in 1892. The family history on his father's side was good, but his mother died of phthisis in 1877, aged 47, and all her collateral relatives died of the same disease. One year after the death of the mother, in 1878, a brother, aged 16, died of phthisis ; he had always lived at home. In 1879 a sister, aged 25, who had been married for three years, died of phthisis ; she had been sick ever since leaving her parents' home. In 1883 a brother, aged 18 years, died of phthisis. In 1887 a brother, aged 35 years, died—he was said to have suffered from cough and expectoration for 14 years. A. B. first showed symptoms in 1889. The brothers and sisters had associated together a great deal. The eldest sister, aged 39 years,

nursed the patient for eight months and fell a victim in 1892, the year that he was admitted into hospital.

Cases like this are frequently quoted as proving hereditary transmission of the disease from parent to child, but here the mother showed the first signs of the disease years after the birth of her youngest child, and both the mother and the children became affected all within a few years of one another at quite different ages, facts strongly suggestive of spread of the disease from one member of the family to another.

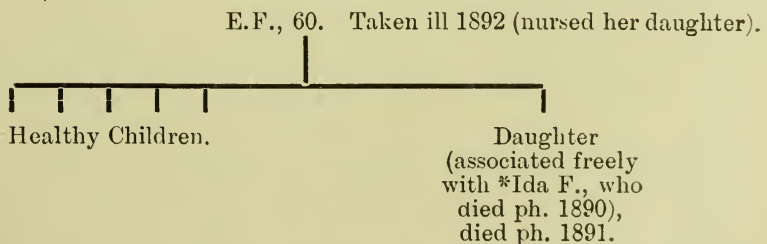
CASE 2.



In the following case the disease was brought into the family by one of the daughters.

C. D., aged 27, was admitted into hospital in 1892, but he had had hæmoptysis in 1888. There was no history of consumption in his parents or in their families. He had two brothers, aged 31 and 32, who with their children were quite healthy. In 1885 a married sister, who had lost her husband and three children through tuberculosis, became consumptive. A brother, aged 29, who had much to do with this sister, died of hæmoptysis in 1886, and his wife also became consumptive. C. D. had associated a good deal with his consumptive brother and sister, and, as already stated, had his first symptom of the disease in 1888.

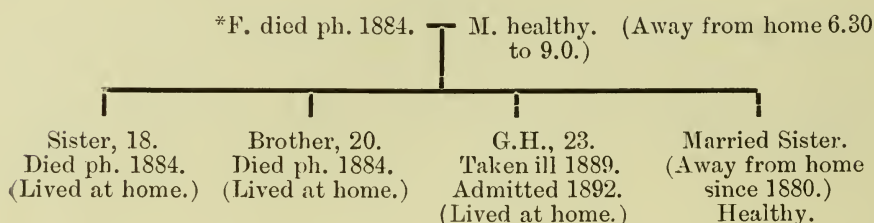
CASE 3.



In this case the disease passed directly from daughter to mother.

E. F., a married woman, aged 60, had good health until 1892, when she contracted phthisis. Her family history was excellent. She had six children, five of whom were healthy, and aged from 25 to 36. One daughter had associated very freely with a tubercular acquaintance, Ida F., both in working hours and during her leisure time. Ida F. died of phthisis in 1890, the daughter followed in 1891 a victim to the same disease, and the patient herself, who had nursed her daughter, became consumptive the following year. The other five daughters had come but little into contact with their consumptive sister and remained in good health.

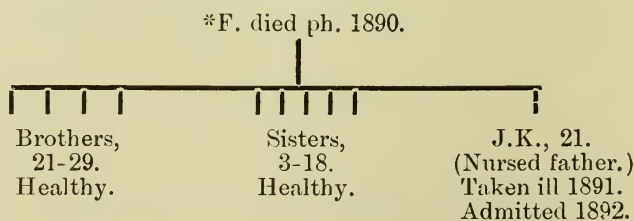
CASE 4.



In the following case those who were least at home escaped.

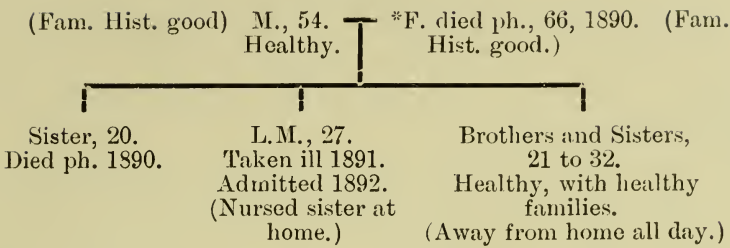
G. H., aged 23, was admitted suffering from phthisis in 1892. His father died of phthisis in 1884, and during the same year a sister, aged 18, and a brother, aged 20, both died of phthisis. G. H. lived with this brother and sister, and in 1889 had his first hæmoptysis. His elder sister married in 1880, and living apart remained healthy. His mother, aged 56, worked away from home all day (6.30 a.m. to 9.0 p.m.) and was also healthy.

CASE 5.



J. K., aged 21, was admitted in 1892. Her father died in 1890 of phthisis; she nursed him until his death. In 1891 she had hæmoptysis, and a year later was admitted with phthisis. Her brothers, aged 21 to 29, and her sisters, aged 3 to 18, *i.e.* both younger and older than she, were all healthy.

CASE 6.



L. M., aged 27, was admitted in 1892. Her mother was 54, and was healthy. Her father died at 66 of phthisis in 1890. The same year the death of her sister, aged 20, from phthisis occurred, and this sister was nursed by L. M. L. M. became affected with the disease in 1891. The other children (21 to 32), *i.e.* both younger and older than L. M., are in good health and have healthy families. They remained away from home the entire day.

What I wish to emphasise in regard to these cases is that while they are cases in which different members of the same family have succumbed to the same disease, far from supporting any theory of heredity, they speak strongly in favour of the doctrine of infection. For while the victims die at ages differing sometimes very greatly from one another, all the victims become affected at very much the same date, *i.e.* in much the same year *anno Domini*, showing that the infection passes from one member of the family to another, sometimes from brother to sister or sister to brother, sometimes from parent to child, but not infrequently from child to parent. If, on the other hand, these were cases of heredity you would not expect to find parent and child attacked in much the same year, and you might expect to find the children affected on reaching the same age approximately, that age varying in different families. But what actually occurs is that parent and child often succumb within a year or so of one another, and that brother and sister of quite different ages die all within a few years of one another.

Infection through marriage has long been recognised. There are hundreds of cases on record. The infection is more often from husband to wife. Out of 262 cases collected by the British Medical Association 119 were cases of infection from husband to wife, and in 69 the infection was from wife to husband.

Dr. Weber instances nine husbands, tubercular before marriage, who lost 18 wives. One lost 4 in succession, one 3, four 2 each, and three 1 each. The wives were all healthy before marriage, and, with one exception, free from hereditary taint.

Another instance is that of a consumptive infecting a previously healthy wife. After his death the woman married again and infected her second husband. After the death of the latter she married a third time, and finally died of consumption, the third husband following her.

One last example is that of a labourer of 42 with a family history free from all tubercular taint marrying in 1871. His wife died in 1886 of consumption. He married again, but within two years of his first wife's death he showed signs of consumption, and three years later his second wife, also hereditarily untainted, showed signs of the disease.

Infection through the Dwelling.—Just as infection is transmitted in families and in married couples, so it occurs amongst unrelated individuals accustomed to live together. The essential element in all such cases is the fact of living together. Such infection plays an especially important rôle amongst the lower classes, with whom over-crowding is prevalent. The room need not be simultaneously occupied by the consumptive and another. For virulent tubercle bacilli have been found six weeks after the death of an uncleanly consumptive on the walls of the house. Two consumptives died in a new fairly healthy dwelling, and within the next twelve years twelve fatal cases of consumption occurred amongst the occupants.

The following case, which I believe to be a case of house infection, came under my own notice. In April 1906 I saw two sisters who lived in Burton. The elder was suffering from chronic phthisis of about two and a half years' duration, while the younger sister had acute phthisis of twelve months' duration. These were the only known cases of consumption in the family, and on seeking a cause for their illness I was told the following. About three years before, the elder sister had left home to earn her living in Coventry, where she lodged in the house of a widower whose wife had but recently died of consumption. Within three months of her living in this house she became affected with cough, expectoration, wasting, and night sweats, and had to return home. The younger girl had never left home, and to my mind there is little doubt that she caught the disease from her sister, who imported it into the home from Coventry. The infection of the younger sister was a virulent one, for she died of her disease in December 1906. The elder sister is still living.

Infection by Fellow-labourers.—The consumptive may be a

greater source of danger to his fellow-workmen than to his family, especially in the case of indoor occupations. The mortality from consumption is much higher in the case of indoor employés (factory hands, workshop employés, office employés, salespeople, waiters, &c.) than in the case of outdoor employés (masons, builders, coachmen, policemen, street cleaners, &c.).

A woodcarver of 29 with an untainted family history was employed in a factory from the year 1887. Two years later, 1889, two of the employés died of consumption, and with one of these the patient had had a great deal to do. The same year the patient had his first symptom of the disease in the form of an attack of hæmoptysis. Two years later, 1891, another workman with a good family history became tubercular, and the following year an apprentice fell a victim. The establishment was large and well ventilated, but the workmen expectorated on the floor.

In another small factory of thirteen hands there were seven cases of tuberculosis among the employés, with four deaths in eleven years, and in every case the individual concerned was the only victim of tuberculosis in his particular family, including the parents, brothers, and sisters, and, in the case of those who were married, the wives and children. The employés were accustomed to spit on the floor.

I examined A. G., a jeweller, 28 years of age, in January 1907. He was then suffering from acute phthisis of the left lung, and was first taken ill, Easter 1906. His father, brothers, and sisters were in good health, but his mother had succumbed to consumption twenty years ago. At first I thought, well, this clearly is a case of hereditary transmission, but on further enquiry I elicited the following. A. G. worked in a small workshop with 14 or 15 other hands, and with one of the men, P. K., he was closely associated. These two men worked at the same bench alone, and they were in the habit of using in common a camel-hair brush for soldering purposes, and this brush was constantly kept in their mouths. Now, P. K. had a very bad cough on his first coming to the shop, and he was known to have died of phthisis in February 1906. In my opinion this savours far more of infection by one workman of another than of transmission from a mother who died twenty years before her son showed any signs of the disease.

E. T., seaman, H.M.S. "Implacable," 18 years of age, had a family history free from tuberculosis, and his personal history was quite good up to the time of his entering the "Implacable" in

January 1906. In July 1906 he became ill, and in August 1906 he was discharged invalided with phthisis. I saw him in January 1907, and he had well-marked phthisis of both lungs. He volunteered the information that he must have caught his cough from another seaman, W. S. W. S. was 19 and had been on the ship for two years. They occupied berths that lay alongside one another. W. S. was invalided with phthisis out of the service shortly after E. T. I have not sufficient data to express a definite opinion, but I think it highly probable that E. T. was infected on board either by W. S. or by one of the other seamen.

Men employed in dusty occupations are more liable to consumption than others, provided the opportunities for infection are not interfered with. Thus, phthisis is particularly common amongst metal-grinders and stone-masons, but, strangely enough, comparatively rare amongst coal-miners. We can readily understand its prevalence amongst stone-masons and metal-grinders, although their occupations are carried on in the open air, because the sharp dust particles that must be inhaled injure the lining of the bronchial tubes, and such injury will facilitate the deposition of tubercle bacilli. Now, in coal-miners phthisis is relatively uncommon, and yet we have a constant inhalation of coal-dust. Possibly the particles are less sharp than in the case of metal and stone and so cause less injury to the bronchial tubes, but, on the other hand, the men work underground, in ill-lighted, ill-ventilated, moist, narrow passages, poor in oxygen, rich in carbonic acid gas, and freely polluted by the excreta of men and animals. Surely men working under such conditions should be very liable to phthisis. Now, the theory of infection furnishes an explanation—the very saturation of the atmosphere with moisture renders the drying and dissemination of the sputum impossible. Hence phthisis is uncommon amongst coal-miners, although one would expect to find it at least as prevalent as it is in stone-masons.

Infection through Overcrowding.—The high mortality rates for tuberculosis where overcrowding exists is more or less evidence of the contagiousness of the disease. Thus:—

In the penitentiaries of Prussia the mortality from tuberculosis used to be 100 per 10,000 living men.

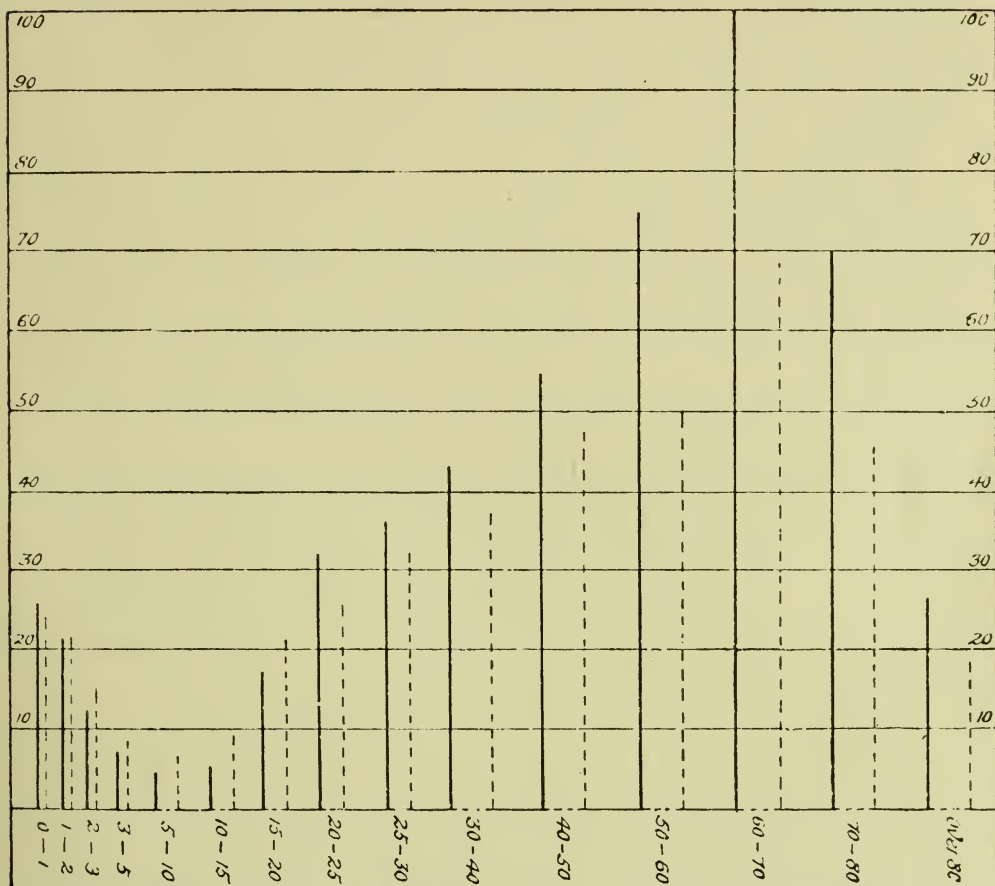
In the penitentiaries of Bavaria the mortality from tuberculosis used to be 150 per 10,000 living men.

In the asylums of Prussia the mortality from tuberculosis used to be 200 per 10,000 living men.

And in the asylums of Bavaria the mortality from tuberculosis used to be 220 per 10,000 living men.

Compare these high figures with the mortality in Birmingham last year—52 per 10,000—and this was high, for the mortality in England and Wales was only 32 per 10,000.

MORTALITY FROM TUBERCULOSIS TO EACH 10,000 OF LIVING
POPULATION AT DIFFERENT AGES.



The black lines indicate the male, the dotted lines the female sex.

The space between each pair of lines indicates the number of years of life included in that pair.

Infection through Nursing.—Those who devote themselves to the care of the tubercular are especially prone to contract the disease. Statistics concerning tuberculosis occurring in the nurses and doctors at the Brompton Hospital for Consumption in London conflict with this statement. But in hospitals nurses and doctors are sent away on the very first signs of illness, and their future condition for the most part remains unknown. It would be a sad thing indeed if at Brompton or at any other consumption hospital the spread of phthisis could not be

effectually prevented. My own experience, derived from living in another of London's large consumption hospitals for nearly three years, does not bear out the boasted statistics of Brompton, for I have met with not a few instances of infection both of nurses and of doctors.

In the Catholic sisterhood in Prussia the yearly mortality from tuberculosis used to be 155 for each 10,000 living nurses. With improved prophylaxis it fell from 155 to 65 per 10,000. This must have been due to a diminution in the amount of the exposure to infection, since all other conditions remained unchanged.

Infection of Health Resorts.—In Cannes tuberculosis was rare amongst the natives before 1860; from that time, which marks the beginning of the winter invasion by consumptives, the disease has become frequent. Davos, San Remo, and Mentone, originally free from tuberculosis, have had the disease gradually imported by invalids from this and other countries. In all these instances the washerwomen and the chambermaids have been the most noticeable victims.

Certain people, like the Tahiti, the New Zealand and American Indians, first learnt to know tuberculosis from Europeans, and came to regard the coughing white man with terror.

Such facts as these can find no adequate explanation in heredity, but, on the other hand, stand out pre-eminently in support of the contagiousness of the disease.

Influence of Age and Sex.—It is, however, when we come to consider the influence of age and sex that the doctrine of heredity receives its death-knell. Let us study for a moment this chart, in which is set out the mortality from tuberculosis for each 10,000 of the living population at different ages. I hesitate to bring before an audience such as I have the honour of addressing statistics of any kind, for who know better than my hearers how statistics can be juggled with. I think, however, that these statistics satisfy the definition that "statistics is the law of great figures." Small figures are of no value; they do not neutralise fluctuations, chance occurrences, and the natural sources of error. These figures deal with the cases of tuberculosis occurring in Prussia amongst a population of 27,000,000 over a period of 16 years. The chart shows points of great interest. During the first year of life, in which the association between mother and child is the closest, we find a high mortality. This mortality diminishes during the second year of life, the child being less closely attached to the

mother. It is still less in the third year, and even here some difference is seen between the two sexes—girls remaining in more intimate relation with the mother than boys. This difference constantly increases up to fifteen, boys having a greater degree of freedom in their play and recreation than girls, who are inclined to find more or less congenial pursuits in the house.

From fifteen to twenty the two sexes tend to approximate, a new element now influencing the result, namely, the earning ability. More boys of fifteen to twenty enter factories than girls of the same age—in the proportion of 897 boys per 1000, as compared with 452 girls per 1000.

After the twentieth year the mortality amongst males outstrips that amongst females, and advances progressively. The mortality amongst females also rises, but more slowly, both because their circle of contact with outsiders is smaller and because their wage-earning number is less.

Between sixty and seventy the wage-earning capacity diminishes amongst men. The mortality, however, remains high, because senile tuberculosis runs a chronic course, and cases of tuberculosis acquired in the previous decade are transferred to this.

After seventy the mortality diminishes as the individual becomes more and more confined and isolated.

After eighty the mortality corresponds with that of the first two years of life, just as the conditions of life approximate to those of childhood with the narrow confinement to the home and family.

It will be noticed that the ages, twenty to forty, are not, as is generally thought, especially subject to the ravages of the disease. The ancient axiom that the prime of life furnishes most victims to tuberculosis is obviously an assumption that finds no support in fact.

This chart, to my mind, speaks most eloquently and most powerfully in favour of contagion. It is directly opposed to the theory of heredity, which would require the highest mortality in the earliest years of life, and a gradually diminishing one as the age increased, till, when the prime of life was passed, there could be found surviving very few indeed of those hereditarily tainted. But we encounter an exactly opposite state of affairs. The statistics for Birmingham and for England and Wales show similar curves, but apparently phthisis is less prevalent than in Prussia. I have chosen the foreign statistics because they cover

a period of sixteen years, rather than take the mortality returns for a single year in our own country.

Let us now consider the doctrine of heredity. It is generally conceded that the children of tuberculous parents frequently become tuberculous. This by many is ascribed to hereditary influence, and while some believe the children are born with the bacilli in their system, most merely assume the transmission of a certain predisposition.

Bacillary Transmission.—We will first discuss the possibility of the transmission of the bacillus to the embryo by the mother or father during its intrauterine existence, for according to some the tubercle bacillus is present in the child at birth, but may remain latent for a varying number of years, when some temporary lowering of the individual's resistance allows the bacilli to burst into activity and cause the disease we know as tuberculosis. Now, if this were so we should expect to find numerous examples of Congenital Tuberculosis, for the theory requires that 1 in 7 of every child born should contain the germ of tuberculosis. Now, for years the attention of pathologists has been directed to this question, and many thousands of still-births and of children under one month have been submitted to examination. And what is the result? There are actually less than twenty cases of congenital tuberculosis on record. Contrast this with syphilis, which we know to be infectious and hereditary. Instances of congenital syphilis from similar *post-mortem* examinations are numerous beyond mention. The few cases of congenital tuberculosis that have been found have occurred in women with advanced tuberculosis who have never survived their confinements by more than a few weeks. Of the cases themselves one died three weeks old, one eight days old, and the remainder were not even born alive, but were fetuses of five to eight months. We may surely conclude that while congenital tuberculosis may exceptionally occur, it can be of no importance as a factor in the dissemination of consumption. But there are other objections to the theory of heredity, and the mortality at different ages affords a very strong objection. Were the congenital transmission of the tubercle bacillus the rule, we should expect to occur what we know does occur in congenital syphilis. In congenital syphilis most fetuses die in utero and give rise to abortions or miscarriages. Others are still-births. Still others survive birth, but show lesions within the early weeks of life, never are the symptoms long delayed. And so with

tuberculosis, the greatest mortality should be during childhood, and there should be a diminution with increasing years owing to the successive deaths of tuberculous individuals, but in actual fact the opposite is the case. The chart shows a moderate frequency up to the third year and then a diminution. From the fifteenth year there is a progressive increase till the sixty to seventy year period, whereupon a decrease again commences. Again, by the fifteenth year only one-seventh of the total deaths from tuberculosis have occurred, and one-half the cases appears in adults between forty and sixty. Heredity cannot explain these figures. Infection does.

Analysing more closely the very early years we find that tuberculosis practically does not occur within the first three or four weeks of life, and that in the first months even it is very rare. If these early cases were cases of congenital tuberculosis the maximum mortality would be shortly after birth, but it is not till the infant has been given the opportunity of being infected that it begins to suffer from tuberculosis. The same occurs in the case of calves. The mortality in calves from tuberculosis under one year is practically nil, whereas—

Out of 6328 calves of 1 to 3 years of age there died 440 of tuberculosis = 6·9 per cent.

Out of 13,307 calves of 3 to 6 years of age there died 1285 of tuberculosis = 9·7 per cent.

Out of 11,101 calves over 6 years of age there died 1881 of tuberculosis = 16·9 per cent.

Another striking point is that the mortality from tuberculosis in children from one to two years of age is approximately the same as for women of 18 to 28, the average period of child-bearing. But as soon as the child begins to move away from the close circle of its family, through attendance at school, *i.e.* from three to four years and upwards, the frequency of tuberculosis diminishes.

It has been held that there is an increased resistance to tuberculosis during infancy and childhood on account of the great activity of body growth. This argument cannot, however, be maintained, because, as a matter of fact, children show a diminished resistance to tuberculosis. In children tuberculosis tends to become disseminated, in adults to remain localised. Virchow examined 263 children under five years of age that had succumbed to tuberculosis and found that on an average more than three

organs were affected. In adults, on the other hand, it is quite common to find tuberculosis confined to a single organ, or set of organs, like the lungs.

Latency of Tuberculosis.—It is possible, as some hold, for tubercle bacilli to enter the embryo in utero and remain latent till adult life, when some accidental circumstance weakens the individual and renders the soil suitable for the dormant horde of bacilli to awaken into life. In support of this view is put forward the fact that in people dying of disease other than tuberculosis, tuberculous foci, partly or completely healed, are frequently found. Such accidental findings have been placed by some observers so high that in every third or fourth non-tubercular corpse such a focus can be found. But there is no proof that these foci have been present for a long time. They are probably due to postnatal infections which have become healed. It seems improbable that tubercle bacilli could remain alive but latent sometimes for forty to sixty years when we realise that in the laboratory bacilli cannot be kept alive for more than half a year under the most favourable circumstances. But all doubts as to the extrauterine origin of tuberculosis in infancy, to say nothing at all of its occurrence in adults, are expelled by the pathological findings. In cases of tuberculosis incontestably congenital, the liver is the organ chiefly involved, and this is because the germ derived from the mother is carried to the foetus in the blood stream and, for anatomical reasons, passes to the liver before it is distributed to the other organs. Now, in the preponderating majority of tuberculous children it is not the liver but, as in adults, the lungs and bronchial glands that are chiefly affected, and after these organs the mesenteric glands, according as the infection is by inhalation or by food consumption.

The theory of heredity, however, receives another blow from the fact that the children of tuberculous parents remain free from the disease if removed from their parents, that is to say, from the source of the infection. Thus, at an orphan asylum in Munich in 41 per cent. of the children both parents had died of tuberculosis, and in 43 per cent. either the father or the mother. In spite of this only two cases of tuberculosis were observed amongst 620 children. In an orphan asylum in Nürnberg, with a capacity for 100 children, many with a pronounced tubercular taint, only a single case of tuberculosis occurred in eight years.

Bernheim found that the progeny of tuberculous rabbits, guinea-

pigs, and dogs became tuberculous if they remained with their parents, but, on the contrary, remained well if removed instantly after birth. It fell to this observer to deliver three tuberculous women of twins. In each case he had one child nursed by a healthy wet nurse living with the mother and the other child sent to the country. In all three cases the children at home died, whereas those sent to the country remained well.

Hereditary Disposition.—The majority of physicians understand by the term heredity when applied to tuberculosis, not a bacillary transmission but a certain predisposition.

The percentage of cases showing a hereditary predisposition varies widely, from 10 per cent. to 85 per cent., according to different authorities, the discrepancy varying according as the parents only are taken into account, or the parents and the grandparents, or in addition, the sisters and the brothers of the parents. By some tuberculosis occurring in any relative is regarded as a sign of hereditary taint. Hence the great variation, 10–85 per cent., quoted by different authors.

The mere fact, however, that the same disease has appeared previously in the family does not prove a hereditary predisposition. We do not speak of hereditary predisposition when cases of scarlet fever or of typhoid fever occur in different members of the same family.

Mortality statistics show that

Out of 7 deaths at any age 1 is due to consumption.

Out of 6 deaths over one year of age 1 is due to consumption.

And out of 2·5 deaths between 20 and 60 years of age 1 is due to consumption.

Remembering, then, that a given patient has on an average twelve close relations (reckoning only 2 parents, 4 grandparents, 1 sister, 1 brother, and 1 brother and sister to each parent), it is not to be wondered at that more than one death from consumption is to be found in the same family.

To prove hereditary predisposition we must prove that in the families of the non-tubercular consumption does not occur even approximately as often as in the families of consumptives. This has not yet been demonstrated. On the other hand, Kuthri tested the frequency of tuberculosis in the parents of 432 tuberculous and 108 non-tuberculous patients and found practically no difference in the amount of tuberculosis in the parents of these two classes.

In 432 consumptives the father was tuberculous in	10·5 per cent.
The mother was tuberculous in	9·0 per cent.
And both parents were tuberculous in	2·4 per cent.
While in 108 non-tubercular patients,	
The father was tuberculous in	9·2 per cent.
The mother was tuberculous in	9·2 per cent.
And both parents were tuberculous in	1·0 per cent.

Even if we proved that the children of consumptives were more frequently the victims of tuberculosis than those of healthy parents, this would not prove hereditary predisposition; the greater frequency would be due to increased opportunities for infection. In order to prove hereditary influence one would have to remove the individual from the circle of his family and then exclude every possible chance of contagion from external sources—an impracticable procedure. Experiments on animals bearing on this, however, have already been quoted.

Before assuming a hereditary transmission from parent to child one must exclude the possibility of infection of the parent by the child. Not infrequently the disease is transmitted by the child to the parent.

When consumption appears in young people heredity apparently plays an important part, whereas in the consumption of adults infection by strangers is more commonly noticed. This is simply because when consumption appears in young people, infection generally is to be found in the family circle, while in adults separation from the family is the rule, and the disease is more readily traceable to contact with strangers.

Some observers make a point of the greater frequency of hereditary transmission through the mother. But again all that this means is, that the mother being in more intimate relation with the home and the children than is the father, contagion has a better chance of spreading from the mother to the child than from the father to the child.

But surely it may be urged some people are more liable to consumption than others. But, on the other hand, can there be any sharp distinction between those who are susceptible to tuberculosis and those who are immune from it, when we consider that one-seventh of all persons die of tuberculosis, and that tubercular foci are found in numerous other bodies as well? Susceptibility or no susceptibility, the healthiest and strongest individuals with no hereditary taint fall victims to consumption. It is only

necessary to recall the prevalence of consumption in athletes and in prize cattle. It is surprising how prevalent phthisis is both in the army and in the navy. It used to be the fashion to send consumptives for sea voyages, but no doctor who has been at sea would make that mistake. In spite of the healthy open-air life the sailors lead, their sleeping quarters and their mess-rooms are so badly ventilated and so crowded, on men-of-war and on merchant vessels alike, that phthisis spreads from one to another and claims for its victims many a young life with a perfectly untainted family record.

Whether individuals inherit a predisposition for or an immunity from tuberculosis must remain for the present an open question. Very often without doubt, an apparent predisposition is merely an expression for the degree of infection, qualitative or quantitative, to which he has been exposed. As a French physician once tersely expressed it—"La prédisposition est un mot pour masquer notre ignorance."

But after everything has been said that can be said in favour of the hereditary transmission of phthisis, whether it be the transmission of the tubercle bacillus direct or merely the transmission of a certain predisposition, I do not believe the hereditary factor can play a decisive rôle in determining the march and distribution of tuberculosis. The chief factor must be sought in contagion or infection.

And now to draw some conclusion that shall justify my having brought such a subject as this before your notice. I would with all humility and with some trepidation suggest that insurance companies need not necessarily look on a so-called family history of tuberculosis as a bogey. When a medical examiner discovers tuberculosis in the family of an applicant he must make enquiries from what I would term the "infection" point of view. When he finds that the parent of an applicant has died of consumption he must endeavour to determine whether that parent became tubercular before or after the birth of the applicant. For if it is quite certain that the parent was quite healthy when the applicant was born and only acquired the disease at some subsequent date, there can be no question of hereditary transmission, but there may be, on the other hand, opportunities for direct infection. Therefore, the amount of contact between the applicant and his consumptive relative, and that relative may be a near or a distant one, must be carefully enquired into. In short, in the matter of family history

I should be lenient, provided that anything like close contact between applicant and the consumptive relative did not occur. But if lenient in this direction I should be sterner in others, for I would demand satisfactory answers to some such questions as the following :—

- (1) Is your wife free from all symptoms of consumption ?
- (2) Are your children equally free ?
- (3) Do you come frequently in contact, either at your home, office, place of business, workshop, factory, or intimate social circle, with anyone you know to be suffering at the present time from a troublesome cough ?

I am aware that some few offices have already adopted the first question relating to the possibility of consumption in the wife of the applicant, but I know of no company that pays any regard to the possibility of active consumption being present in the children or in the social or business contacts of the applicant.

DOUBLE ENDOWMENT ASSURANCE.

By WILLIAM PENMAN, Jr., F.I.A., Atlas Assurance Co.

A DOUBLE Endowment is an assurance under which a certain sum is payable if death occur within a specified period, whilst, if the life assured survive to the end of the period, double the amount of the death benefit becomes payable.

Double Endowments are a comparatively recent development of life assurance. In 1893, in a paper read before the Insurance Institute of Yorkshire, the late Mr. Newbatt used the term Double Endowment in reference to what would now be called a Double Benefit Assurance, so that evidently at that period the class of assurance now under consideration was so unfamiliar that it had not acquired a well-known and distinctive title.

Double Endowments appear to have been introduced about the year 1891, and the earliest prospectuses I have been able to obtain recommend policies of this description, on the one hand, to those healthy persons who desire to obtain the maximum return possible when an investment is combined with life assurance, and, on the other hand, to those persons who on account of residence, occupation or health would be called upon to pay an extra premium under other tables, but might be accepted at the normal rate if they took out a Double Endowment Policy. It would thus appear that the new scheme was an outcome (*a*) of the desire on the part of offices to simplify the terms of their contracts by granting policies at normal rates even when the lives assured were subject to extra risks, and (*b*) of the modern tendency to regard life assurance as an investment.

The following extracts from prospectuses issued prior to 1895 show how the merits of the scheme were at first set out, and are indeed quite typical of the literature on the subject issued at the

present time, except that the descriptions are now somewhat shorter:—

“The Directors have recently adopted a scheme of *Double Endowment Assurances*, specially suited for healthy lives who desire an easy and safe and profitable medium of investing savings, and who at the same time wish Life Assurance on the most favourable terms.

“Under the plan of ‘Double Endowment Assurances’ a fixed sum, say £1000, is payable if death occur within a specified period, while if the life survive the period, the sum assured is also payable, together with a *guaranteed bonus* of equal amount.” Here follow some figures in illustration of the working of the “scheme,” and the original continues:—

“RETURN ON THE INVESTMENT.

“The above figures show that a healthy life, by effecting a ‘Double Endowment Assurance’ may realise more than $3\frac{3}{4}$ per cent. compound interest on annual savings, and enjoy at the same time the benefits of Life Assurance.”

Other extracts read as follows:—

“While the Double Endowment Assurance scheme offers great advantages to healthy lives exposed to only ordinary risks, it is specially suited to those who from any cause would under the more usual tables be called on to pay Extra Premium. It is therefore more particularly commended to the attention of

“Military Officers.

“Naval Officers.

“Officers in the Mercantile Marine.

“Persons engaged in the Liquor Traffic.

“Merchants or their Employees proceeding to the
East or West Indies.

“Mining Engineers.

“In those cases also where the Medical Officer of the Company finds that the health of the applicant does not reach the average standard, the Directors will usually be prepared to grant a Double Endowment Assurance Policy at tabular rates.” And

“It thus appears that, under this plan of Assurance, the Policyholder, if he survives, obtains for himself in the shape of the ‘Double Endowment’ full compensation for all his payments, and

if he dies, his representatives do not lose, because the ordinary sum assured becomes due. Moreover, the Company is protected either in the case of life or of death, and can afford to offer these great advantages even to lives exposed to extra hazard, without charging premium beyond the tabular rates. The scheme is profitable to the Assured, because extra premium is thereby abolished, and, being based on scientific principles, it is also safe for the Office."

Other Offices are apparently not prepared to go so far in the matter of waiving extra premiums, as, for example, the Office which describes the system thus:—

"DOUBLE ENDOWMENT ASSURANCE.

"This is somewhat similar to an ordinary Endowment Assurance, the difference being that in the event of the stipulated term being survived the amount disbursed is double that which would have been paid if death had occurred previously. This system practically secures, if the period be lived through, a Bonus equal to the original sum assured. It will be observed that the rates of premium are the same at all ages for Assurance of the same term. Under this table, consequently, the Directors may be able to accept at the normal premium proposals on the lives of people whose personal or family history, or occupation, would in the usual course call for an increased rate.'

These extracts are of sufficient interest to warrant their being thus set out at some length, and I think they indicate very clearly the scope and objects of the scheme as originally introduced.

Although the majority of Offices transacting this class of business adhere to the simple form of Contract as described in the first paragraph of this paper, a few also transact the business "with profits" (one Office, indeed, appears to have done this from the commencement). There are also similar schemes, such as Half Double Endowments, a Treble Endowment, and a Double Endowment scheme, under which the death benefit is increased when the total premiums paid exceed the sum assured.

These last mentioned, however, appear to be beyond the scope of the subject of this essay, and attention will therefore be confined to Double Endowments, whether issued with or without profits.

The subject may conveniently be considered under the following heads:—

1. BUSINESS NOW IN FORCE AND THE PRACTICE OF OFFICES AT THE PRESENT TIME.

For information regarding the extent of the business transacted under this class of assurance one naturally refers to the Board of Trade Returns, and here, at the outset, a difficulty occurs, for whereas only fifteen Companies in the years 1902–1906 inclusive showed their Double Endowments under a separate heading, at least six other Companies publish rates, and presumably therefore have some policies of this description on their books.

Even this does not exhaust the number of such Companies, for last year, in connection with a paper on “Extra Premiums,” read by Mr. H. E. W. Lutt before the Institute of Actuaries, twenty-five Offices answered inquiries as to how they dealt with extra risks rising under Double Endowment Assurances, and it is therefore reasonable to assume that there are at least ten Offices transacting this class of business which include Double Endowments in their valuation returns under the general heading of Endowment Assurances.

The accompanying table shows the business on the books of the fifteen Companies as disclosed by the valuation returns for the years 1902–1906, and, whilst this is not a complete record, I think it may be assumed that the business on the books of the other ten (or more) Companies is not likely to be of great volume:—

TABLE I.—1902–1906.

OFFICE.	WITHOUT PROFITS.		WITH PROFITS.		TOTAL.		Office Pre-miums.	Net Pre-miums.	Value of Net Pre-miums.	Reserve held.
	No. of Policies.	Amount Assured at Death.	No. of Policies.	Amount Assured at Death.	No. of Policies.	Amount Assured at Death.				
		£		£		£	£	£	£	£
No. 1 -	10	6,633	181	76,369	191	83,002	5,676	5,370	64,314	34,662
2 -	..	..	2,876	492,119	2,876	492,119	27,595	24,963	317,211	141,690
3 -	..	..	2	150	2	150	15	14	162	25
4 -	173	26,408	..	..	173	26,408	1,379	1,300	19,406	3,060
5 -	1	250	..	..	1	250	13	12	203	14
6 -	24	5,215	..	..	24	5,215	277	251	3,644	799
7 -	3	900	..	..	3	900	59	56	774	64
8 -	..	..	26	16,093	26	16,093	1,223	?	?	747
9 -	5	2,200	64	19,913	69	22,113	1,607	1,423	18,086	5,171
10 -	51	5,050	..	..	51	5,050	348	293	3,890	324
11 -	2	200	1	1,000	3	1,200	61	54	844	187
12 -	661	43,125	..	..	661	43,125	3,356	?	?	5,508
13 -	1	500	..	..	1	500	32	29	316	217
14 -	1	100	6	1,699	7	1,799	155	130	649	2,160
15 -	25	4,917	..	..	25	4,917	342	312	4,335	434
	957	95,498	3,156	607,343	4,113	702,841	42,138	34,207	433,834	195,062

Since writing this essay it has come to my knowledge that one large Company, not included above, has over 40,000 Double Endowment Policies assuring nearly £5,000,000.

W. P.

The figures in this table have not been extracted literally from the Returns. Some Companies include under the heading of "Sum Assured" the amount payable at maturity and others include only the amount payable at death. By considering carefully the relative values of the premiums and sum assured it is possible to ascertain which course has been adopted, and in every case the above table gives the amount of the sums payable at death only.

It will be observed that the business is really in the hands of a few Offices; 88 per cent. of the total is made up by three Offices alone, and only six have any considerable amount of business at all.

Proceeding now to analyse the figures given in the table we find that the average Office premium is about £6 per £100, indicating that the average term is about 24 years.

The value of the net premiums, amounting to £34,207 per annum, is £433,834, which is about 12·7 years' purchase, and this indicates an unexpired term of about 18 years, for the value of a term annuity for 18 years according to the H^M table at 3 per cent. is as follows:—

Age 30	12·724
„ 35	12·550
„ 40	12·306
and „ 45	11·919

The average term of the policies being originally about 24 years and the average unexpired term being about 18 years, we arrive at six years as being the average duration of the policies at the dates of valuation, which dates of course were spread over the quinquennium.

The last column shows the reserves held, which amount to about five times the premium income.

There is no doubt that the business in force at the present time (say at 31st December 1907) is much greater than the amount shown in Table I., and probably the average duration of existing policies now exceeds six years, but the table contains the most recent information available from the published figures and could not be brought more up to date without private information from the Offices concerned.

The accompanying Table II., similar to No. I., shows the business disclosed by the valuation returns for the years 1897–1901. Only

five Companies showed their Double Endowments separately, and no record at all appears prior to 1898.

TABLE II.—1897–1901.

OFFICE.	WITHOUT PROFITS.		WITH PROFITS.		TOTAL.		Office Premiums	Net Premiums	Value of Net Premiums.	Reserve held.
	No. of Policies.	Amount Assured at Death.	No. of Policies.	Amount Assured at Death.	No. of Policies.	Amount Assured at Death.				
		£		£		£	£	£	£	£
No. 1 - ..	..	..	975	241,503	975	241,503	13,815	12,771	162,932	52,446
2 - 10	10	2,300	..	..	10	2,300	96	87	1,492	131
3 - 1	1	1,000	24	6,533	25	7,533	533	457	6,239	896
4 - 1	1	500	..	..	1	500	32	29	365	78
5 - ..	..	..	9	2,700	9	2,700	262	220	1,794	1,920
	12	3,800	1,008	250,736	1,020	254,536	14,738	13,564	172,822	55,471

2. PREMIUMS CHARGED.

Most Offices charge premiums fixed according to the term of the assurance but not varying with the age, some stipulation being made as to the limits of age within which the scale of premiums applies, and there are only a few which vary the premium according both to the age at entry and the term.

The scales published by these last-mentioned Offices form the best justification for the practice of the majority, for the variation in rate is about one penny per year of age, and on such heavy premiums as £4 per cent. and upwards such trivial differences might well be ignored and a uniform rate charged for each term.

Two Offices also quote scales of single premiums, one of them varying with the age and the other constant.

The following table gives information regarding the rates of annual premium advertised by Offices transacting "Double Endowments," and also, in the case of without-profit policies, gives the rate of interest yielded by the "investment" if the policy reaches maturity.

TABLE III.—ANNUAL PREMIUMS FOR ASSURANCE OF £100 AT DEATH WITHIN THE TERM, OR £200 ON SURVIVAL OF THE TERM.

TERM.	WITHOUT PROFITS.			WITH PROFITS.		
	Highest.	Lowest.	Average.	Highest.	Lowest.	Average.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
15 years,	11 10 5	10 11 0	10 19 9	11 10 0	11 8 6	11 9 2
20 „	8 0 6	7 5 0	7 12 8	8 6 0	7 19 9	8 1 9
25 „	5 19 5	5 7 0	5 13 7	6 5 0	5 19 5	6 1 6
30 „	4 12 8	4 3 0	4 8 8	4 18 0	4 13 0	4 15 6

CORRESPONDING RATE OF INTEREST
YIELDED AT MATURITY.

TERM.	WITHOUT PROFITS.		
	Highest Premium.	Lowest Premium.	Average Premium.
15 years,	17 $\frac{7}{8}$ %	27 $\frac{7}{8}$ %	21 $\frac{1}{2}$ %
20 „	2 %	3 %	21 $\frac{1}{2}$ %
25 „	21 $\frac{1}{8}$ %	3 %	21 $\frac{1}{2}$ %
30 „	21 $\frac{1}{4}$ %	27 $\frac{7}{8}$ %	21 $\frac{1}{2}$ %

The rates of interest yielded at maturity on with-profit policies would be considerably higher, when the ordinary endowment assurance bonus is given, than those yielded by without-profit policies.

In many cases about 3 $\frac{1}{2}$ % would be yielded.

It will be seen that the premiums charged for without-profit policies vary within very wide limits, surprisingly wide, indeed, even when it is borne in mind that an Office which charges a high rate is often justified in so doing by reason of having a comparatively low policy average.

This consideration partly accounts for the differences between the highest and lowest premiums, but, after making every allowance for this, there is a very large margin in view of the fact that the contract is a fixed one, free from any complications in the way of bonuses.

On the other hand, the premiums for with-profit policies are comparatively level, and the lowest in each case refers to the same Office whose method of giving bonuses on these policies is such that the premiums are not strictly comparable with those of other Offices transacting Double Endowment Assurances “with profits.”

Of four Offices advertising rates for these with-profit policies, three give the same bonuses as are declared on their ordinary Endowment Assurances for the same age and term, and the fourth, referred to above, gives a bonus payable only in the event of death within the last third of the term, being a Simple Reversionary Bonus of a temporary nature.

All these Offices quote with-profit premiums which do not vary with the age, and the following table shows that the majority of Offices would be justified in quoting level rates for policies of this description, provided the bonuses given were similar to those declared on their ordinary Endowment Assurances:—

TABLE IV.—DIFFERENCES BETWEEN ANNUAL PREMIUMS FOR ENDOWMENT ASSURANCES—“WITH” AND “WITHOUT” PROFITS.

OFFICE A, DECLARING A SIMPLE
REVERSIONARY BONUS.

OFFICE B, DECLARING A COMPOUND
REVERSIONARY BONUS.

AGE.	TERM.				AGE.	TERM.			
	15 years.	20 years.	25 years.	30 years.		15 years.	20 years.	25 years.	30 years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.
25	0 11 5	0 10 6	0 9 7	0 8 10	25	0 17 4	0 14 6	0 12 10	0 11 9
30	0 11 5	0 10 6	0 9 8	0 8 11	30	0 17 6	0 14 8	0 13 0	0 12 1
35	0 11 5	0 10 6	0 9 8	0 9 0	35	0 17 9	0 14 11	0 13 4	0 12 4
40	0 11 5	0 10 7	0 9 10	...	40	0 17 11	0 15 2	0 13 8	...
45	0 11 6	0 10 8	...	...	45	0 18 3	0 15 7	...	...

Offices A and B were selected at random, and these comparatively level “bonus loadings” will be found to be the general rule.

The “bonus loadings” actually increase somewhat with the age, but the net premiums (shown further on in Table V.) decrease

with the age to an extent more than counterbalancing the increase in the "bonus loadings."

As mentioned above, Offices charging level premiums for each duration generally fix a limit of age within which the scale of premiums applies. The general rule is that the age at maturity shall not exceed either 65 or 70; one Office limits the age at entry to 45, and another does not advertise any limit, although presumably it has one in practice.

Presumably, also, Offices are willing to issue such policies at other ages on being paid an appropriate premium.

3. EXTRA RISKS.

Most of the Offices now being considered are willing to grant Double Endowments, either at tabular rates or at a reduced extra, on lives which under any other class of assurance would be charged an extra premium, and this applies whether the extra would be chargeable on account of residence, occupation, or because the life assured is "under average."

Climate Extras.

In his paper, already referred to, Mr. Lutt gives the following information regarding the "Climate Extras" charged by Offices on Double Endowment Assurances:—

"Out of a total of 37 Offices, 5 Offices waive the extra (or extras of not more than 20s. per cent.) altogether, and 10 charge a smaller extra, whilst 3 give each case special consideration, and 7 charge the usual extra rate on the death benefit; 12 do not grant this form of policy or have no definite rule."

Hazardous Occupations.

As regards hazardous occupations, one or two Offices are willing to take naval and military officers without charging an extra premium, one Office accepts publicans and mining engineers, and generally the rule would appear to be that where the extra premium charged for the occupation under other classes of assurance is not large the life can be accepted under the Double Endowment scheme without extra premium. To a certain extent larger extra risks are sometimes met by limiting the term of the Double Endowment.

Under-Average Lives.

Here again, provided there is no very serious fault, the life will in several Offices be accepted for a Double Endowment at tabular rates, presumably, of course, due consideration is given to the nature of the extra mortality anticipated; and here again the term of the endowment can be brought into operation to a certain extent.

Assurance without Medical Examination.

Five Offices at least are willing, in approved cases, to dispense with medical examination; only one of which specifically retains the right to apply to the medical attendant, although it seems probable that they all make such a reference in practice.

Most Offices advertise that their Double Endowment policies are "world wide," but it is hardly necessary to dwell on this, for although World-Wide Double Endowments are granted where other unrestricted policies would not be issued, the great majority of modern policies are of this description.

From the foregoing it is evident that, provided there is nothing extraordinary about either the nature or degree of the extra risk, it is possible to select an Office which will grant a Double Endowment Policy without charging an extra premium, and it would appear that to a large extent the problem of issuing whole-world policies at tabular rates in all cases is solved by this scheme.

In practice, however, the scheme does not meet the case of the person who requires the largest assurance possible for a given premium. If a person wants a £500 policy and proposes to pay about £10 a year for it, it is very little use offering to take him under a 25-year Double Endowment at a premium of £30 as an alternative to charging him an extra of 10s. per cent. For this reason the Double Endowment scheme is not of so much value as might at first appear to be the case, but, on the other hand, the "Investment" aspect undoubtedly appeals to many people, and the system seems most suitable for persons proceeding abroad to such places, as India, for example, for which an extra of moderate amount would be charged in respect of other classes of assurances. In many cases the heavy rate of premium is not a deterrent to a man proceeding abroad, such persons being frequently well paid when compared with the home standards of income.

4. NON-FORFEITABLE CONDITIONS AND SURRENDER VALUES.

After a specified number of annual premiums have been paid, generally two, but sometimes three, the practice is to grant a paid-up policy for such proportion of the original sum assured as the number of premiums paid bears to the number originally payable.

In several cases this is an automatic provision coming into force upon non-payment of any premium, but in other cases the paid-up policy has to be applied for.

In one or two Companies the policy is kept in force by the advance of the premium, upon security of the surrender value, less any loan already granted by the Company. This, of course, is the ordinary automatic non-forfeitable condition (or "privilege") now inserted in the policies of many Offices and does not call for further comment.

As regards surrender values not much information is available. One or two Offices guarantee the return of certain proportions of the total premiums paid, one Office publishing a regular graduated scale varying from 40 per cent. to 90 per cent.; another Office gives the same surrender value as for Endowment Assurances.

Reference to the scale of premiums charged shows that in some cases the surrender value may exceed the death benefit. There is no reason, theoretically, why this should not be the case, but it would be quite unsound in practice to pay more than the death benefit without first getting evidence of the health of the life assured. Probably in the majority of cases this difficulty is met by limiting the surrender value to the amount of the death benefit, but an application from a healthy life approaching the end of the term could not well be met in this way.

5. COMPARISON OF PRACTICE AND THEORY.

Having dealt with the present practices of Offices as disclosed by their published prospectuses and pamphlets, I now propose to consider how far these practices are in accord with theory.

- (a) With regard to the *adequacy of the premiums charged*.
The following extract from Table III. shows the average premiums charged for non-profit Double Endowments :—

£10	19	9	when the term is 15 years.
7	12	8	„ „ 20 years.
5	13	7	„ „ 25 years.
4	8	8	„ „ 30 years.

If now we take net premiums according to the O^[M] table of mortality, with interest at $3\frac{1}{2}$ per cent., and load them to allow for

- (1) an initial expenditure of £1 per cent.,
- (2) a constant annual expenditure of 2s. 6d. per cent.,
- and (3) a percentage of $7\frac{1}{2}$ per cent. on the gross premiums,

we obtain the following Office annual premiums, which are in close agreement with the average premiums quoted above:—

£11	0	5	when the term is 15 years.
7	12	3	„ „ 20 years.
5	12	6	„ „ 25 years.
4	7	0	„ „ 30 years.

The loadings used to obtain these premiums are not put forward as being particularly suitable, but were used specially to bring out a scale of premiums similar to the average premiums already obtained.

The standard commission payable on business of this description is, I believe, £1 per cent. on the amount of the death benefit, with $2\frac{1}{2}$ per cent. on renewal premiums, and as, no doubt, this initial commission is sometimes greater than 1 per cent., and there are other initial expenses, probably a more suitable scale would be formed by making an allowance for, say, an initial expenditure of £2 per cent. and by decreasing the percentage loading from $7\frac{1}{2}$ per cent. to about 6 per cent. However, my reason for building up a scale of Office premiums is to consider the adequacy of the premiums now being charged, and I think the bases adopted show that the business is well worth doing at the rates which, on the average, the Offices are charging.

The net premium is at $3\frac{1}{2}$ per cent., and as most Offices realise from $\frac{1}{4}$ per cent. to $\frac{1}{2}$ per cent. in excess of this rate, there is a margin of profit from this source. The allowance for initial expenditure, as already stated, is perhaps rather small, but the constant of 2s. 6d. per £100, assuming the not very large policy average of £300, gives an ample allowance of 7s. 6d. per policy per annum for renewal expenditure, and the $7\frac{1}{2}$ per cent. on the gross premium leaves, after payment of renewal commission, a

considerable margin for contingencies and profits. Of course on policies of this description, where the rate of premium is heavy, the expense ratio is not actually so high as for the other classes of business transacted by a Life Office.

- (b) With regard to the practice of charging, under varying conditions as to age, health, family history, foreign residence, and occupation, a premium which is fixed solely with reference to the term of the Double Endowment.

I have calculated and give in the accompanying Table, No. V., net rates of annual premium, based on various assumptions as to the nature of the extra risk incurred, together with the corresponding premiums based on the O^[M] table.

TABLE V.—NET ANNUAL PREMIUMS FOR DOUBLE ENDOWMENTS FOR £100, RATE OF INTEREST 3 PER CENT.

Term (No. of Years).	Age at Entry.	Table A. Normal Table.	Table B. Rated- up Lives.	Table C. “Early Risk” Table.	Table D. Without Medical Examin- ation.	Table E. Constant Extra Mor- tality.	Table F1. Constant Extra Mor- tality, Rated- up Lives.	Table F2. Same as F1 up to Age 50, Rated- up Lives beyond.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
15	20	10 8 4	10 7 10	10 6 5	10 9 8	10 10 10	10 10 9	10 10 9
	30	10 7 10	10 6 6	10 11 5	10 9 4	10 10 5	10 10 3	10 10 3
	40	10 6 6	10 4 1	...	10 8 7	10 9 7	10 9 9	10 11 1
20	20	7 4 10	7 4 3	7 3 2	7 6 1	7 8 11	7 7 11	7 7 11
	30	7 4 3	7 3 0	7 11 2	7 5 9	7 8 7	7 7 7	7 7 7
	40	7 3 0	7 1 8	...	7 5 1	7 7 11	7 7 6	7 8 6
25	20	5 7 7	5 6 10	5 7 5	5 8 9	5 13 1	5 11 3	5 11 3
	30	5 6 10	5 5 11	5 16 8	5 8 4	5 12 10	5 11 1	5 11 9
	40	5 5 11	5 6 7	...	5 7 10	5 12 8	5 11 11	5 12 0
30	20	4 3 3	4 2 7	4 5 5	4 4 5	4 10 3	4 7 7	4 7 7
	30	4 2 7	4 2 2	4 14 2	4 3 11	4 10 1	4 7 8	4 8 4
	40	4 2 2	4 6 7	...	4 4 1	4 10 10	4 10 5	4 9 8

Table VI. gives the difference between the $O^{[M]}$ premiums and the premiums for the "extra risk" tables.

TABLE VI.—EXCESS OF PREMIUMS OVER THOSE UNDER
TABLE A.

Term (No. of Years).	Age at Entry.	Table B.	Table C.	Table D.	Table E.	Table F1.	Table F2.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
15	20	-0 6	-1 11	1 4	2 6	2 5	2 5
	30	-1 4	+3 7	1 6	2 7	2 5	2 5
	40	-2 5	...	2 1	3 1	3 3	4 7
20	20	-0 7	-1 8	1 3	4 1	3 1	3 1
	30	-1 3	+6 11	1 6	4 4	3 4	3 4
	40	-1 4	...	2 1	4 11	4 6	5 6
25	20	-0 9	-0 2	1 2	5 6	3 8	3 8
	30	-0 11	+9 10	1 6	6 0	4 3	4 11
	40	+0 8	...	1 11	6 9	6 0	6 1
30	20	-0 8	+2 2	1 2	7 0	4 4	4 4
	30	-0 5	+11 7	1 4	7 6	5 1	5 9
	40	+4 5	...	1 11	8 8	8 3	7 6

I propose here to state briefly what classes of extra risks these premiums are intended to represent, and, in order not to break the continuity of this paper, intend to give more precise details as to how they were calculated in an Appendix. Of course it must be borne in mind that any conclusions based upon the premiums in Table V. depend entirely on the assumptions underlying their construction.

Table A gives the premiums according to the $O^{[M]}$ table. The $O^{[M]}$ table is one of the most recently-constructed tables of mortality; it is based upon the experience of assured lives and is analysed to show the effect of medical selection.

Table B.—The $O^{[M]}$ table, the age being assumed to be 10 years above the true age. The premiums in this table are intended to represent those applicable to “rated-up” lives.

Table C.—These premiums are included through the courtesy of Mr. H. E. W. Lutt, and are based upon a hypothetical table given in his paper already referred to. The hypothetical table represents rates of mortality which might be expected amongst lives subject to a large extra risk during the age-period of, say, 25 to 50 (*e.g.* amongst lives showing a family history of consumption).

Table D.—In this case the premiums are based on the $O^{[M]}$ table, excluding the 10 years following medical examination (*i.e.* the $O^{[M]}$ “ultimate table”). The premiums are intended to represent those applicable to lives accepted without medical examination.

Table E.—The premiums are based on rates of mortality about .01 in excess of the $O^{[M]}$ rates at all ages. They would involve an annual extra premium on whole-of-life policies of about 15s. per £100, whatever the age at entry. This is a form of extra premium frequently charged by Offices to meet extra risk from foreign residence.

Table F 1 is based on the $O^{M(5)}$ table, with the rates of mortality increased by about 60 per cent. throughout. It is intended to represent premiums applicable to persons residing in India. In the Appendix a comparison is given of the rates of mortality on which these premiums are based and those of an actual experience. Tables obtained in a similar way may also be considered as applicable to certain hazardous occupations.

Table F 2 is similar to F 1; but an attempt has been made to measure the effect upon the premiums of retirement and return to a temperate climate of the life assured at age 50. In constructing this table it was assumed that from 50 onwards the rates of mortality actually experienced would be the normal rates at ages five years older than these actually attained.

The premiums in Table A for each term are approximately equal for the various ages at entry and form a complete justification of the practice of publishing scales of premium varying only with the term of the insurance. Provided the age at maturity does not exceed 70, it will be seen that the premiums actually decrease slightly with the age. If the age at maturity exceeds 70 it becomes necessary to increase the premium, as will be seen from the final premium in Table B, which gives the rate for a 30-year

Double Endowment maturing at age 80 if the assured be a normal life.

The premiums in Table B correspond with those in Table A for an age 10 years younger, and go to show that, where an "under-average" risk is of such a nature that throughout life the mortality experienced will be the normal rates for a person 10 years older, the Office can safely issue a Double Endowment at tabular rates. Care should be taken that the "rated-up" age at maturity does not exceed 70.

It is doubtful whether many under-average risks are actually of this description, but the method of "rating-up" is a common one, and where really applicable a Double Endowment at ordinary rates can safely be offered.

The rates of mortality on which Table C is based are about normal at age 25, increase very rapidly up to age 40, then drop slightly and become normal from 55 onwards. As will be seen, when the term is completed below age 40 the premiums are less than the normal, because the rate of increase is sufficiently rapid for the gain due to heavy mortality at the end of the term to counteract the *loss* from heavy mortality at the beginning of the term.

When the term is extended beyond maturity age 40, we get additions to the normal premiums which in some cases are very heavy indeed. Premiums for age at entry 40 have not been calculated as the hypothetical mortality table is really a "select" one and these premiums would be of no value for purposes of comparison.

Extra risks of this description are, I believe, very frequent in practice. The medical examination is sufficient to ensure that at first there is very little extra mortality, but the extra mortality rapidly increases and reaches a maximum; this rapid increase being anticipated from some circumstances in the family history or personal condition of the applicants for insurance. If the life actually survives the critical period it seems only reasonable to assume that he will become, after a period of, say, 30 years, a normal life.

The rates of premium in Table C show that, if circumstances indicate rates of mortality of the nature described above, very great discrimination is needed in selecting a suitable term at which a Double Endowment may be granted at tabular rates.

Table D shows rates of premium which are consistently greater

than the normal, but the increase is quite small, varying only from 1s. 2d. to 2s. 1d., and I think the table shows that, if ordinary care be exercised, Double Endowments may safely be issued at tabular rates without medical examination.

If careful enquiries are made from the private referees, and a report is obtained from the medical attendant, it appears to me that the chief medical officer of a Company will probably be able to select lives which, on the average, will be considerably better than the survivors of those medically examined and past for insurance at an age 10 years younger. Any improvement in the early mortality would tend to lessen the premiums, and hence the opinion expressed above that the small increases disclosed in Table D may be disregarded.

Much, of course, depends upon whether the proposer gives accurate information as to the medical men he has consulted and the ailments he has suffered from.

Any concealment of a serious nature, however, would almost certainly be discovered if an early claim arose, and as this would vitiate the policy, the Office is better protected than would appear at first sight.

The premiums under Table E are also in every case greater than the normal, and the differences are of such a size that they cannot be entirely ignored.

If the risk be of such a nature that an extra premium would be properly charged under a whole-of-life policy constant for every age at entry, then under a Double Endowment policy a proportionate extra of, say, one-half for long terms and one-third for short terms, would be appropriate.

It seems probable, however, that cases where the extra mortality is constant for all ages are rarely met with in practice, and the assumption made in constructing Table F1 seems much more reasonable, and is confirmed by the fact that a number of actual mortality experiences based upon lives subject to "extra mortality" can be practically reproduced by treating a normal table in a way similar to that in which Table F1 was obtained from the $O^{M(5)}$ table.

The premiums brought out are somewhat smaller than those in Table E, but the excesses over the normal premiums are still appreciable, and unless the term and age at maturity are limited to, say, 25 years and age 55 respectively, they should not be dispensed with. For short terms and low ages of maturity the premiums charged are at so high a rate that the small extras

which ought strictly to be charged could not well be imposed in practice. Still the fact that a small extra is properly chargeable should be borne in mind, and would be a sufficient ground for refusing to issue a policy for a small amount.

The differences between the premiums in Tables F 2 and F 1 are not very great, but they indicate that, in considering the term of a Double Endowment to be granted on the life of a person resident in a tropical climate, due weight should be given to the probable date of retirement. The policy ought *not* to mature a few years after retirement.

- (c) With regard to the practice of granting proportionate paid-up policies and surrender values in proportion to the total premiums paid.

The accompanying Table No. VII. gives the reserves under Double Endowment policies for various ages at entry, terms, and durations, with the reserves for the corresponding proportionate paid-up policies, both calculated according to the OM table at 3 per cent. interest. In a third column I have added the total premiums paid based on the average premiums given in Table III.

It will be seen that Offices can well afford to grant these proportionate paid-up policies; that after the first few years a considerable proportion of the premiums paid could be returned in the event of surrender; and that the total premiums paid is a fairly satisfactory basis on which to calculate surrender values.

It does not appear to be necessary to investigate what reserves should be kept under Double Endowments, issued at the tabular rates of premium, on lives subject to extra mortality.

Owing to heavier mortality during the early years of such policies there will be a smaller proportion of the premiums available for accumulation, and the reserves ought consequently to be smaller; ultimately the profit arising from the heavier mortality at the end of the term will come into operation, and at maturity the amount of the endowment will be thus made up. Throughout the whole duration of the policy, however, it seems evident that, if the extra risk be such that the normal premium is properly chargeable, then the true reserves will be less than the normal.

As the practice is to make the normal reserve the Offices keep more in hand in these cases than is really necessary. At the same time it should be borne in mind that, although it is both

convenient and safe for an Office to make normal reserves for such policies subject to extra mortality, it would not be correct

TABLE VII.

{ O^M MORTALITY
3% INTEREST.

COMPARISON OF RESERVES (1) FOR DOUBLE ENDOWMENTS (£100)
AND (2) FOR PROPORTIONATE PAID-UP POLICIES WITH TOTAL
PREMIUMS PAID.

Age at Entry.	Term of Double Endowment.	No. of Years in force.	Reserve for Double Endowment Policy.	Reserve for Proportionate Paid-up Policy.	Total Premiums Paid.
30	15	5	54·6	47·7	54·9
		10	120·2	112·3	109·9
	20	5	37·0	30·3	38·2
		10	80·9	70·9	76·3
		15	134·1	125·6	114·5
	25	5	26·4	20·5	28·4
		10	57·7	47·7	56·8
		15	95·2	83·9	85·2
		20	141·3	132·8	113·6
	30	5	19·6	14·4	22·2
		10	42·6	33·3	44·3
		15	69·9	58·2	66·5
		20	103·0	91·3	88·7
		25	144·7	136·2	110·8
40	15	5	53·3	46·6	54·9
		10	118·3	110·6	109·9
	20	5	35·4	29·1	38·2
		10	77·9	68·5	76·3
		15	130·7	122·6	114·5
	25	5	24·8	19·3	28·4
		10	54·3	45·0	56·8
		15	90·1	79·6	85·2
		20	135·9	127·8	113·6
	30	5	18·1	13·4	22·2
		10	39·1	30·8	44·3
		15	64·1	53·6	66·5
		20	95·0	84·4	88·7
		25	136·4	128·7	110·8

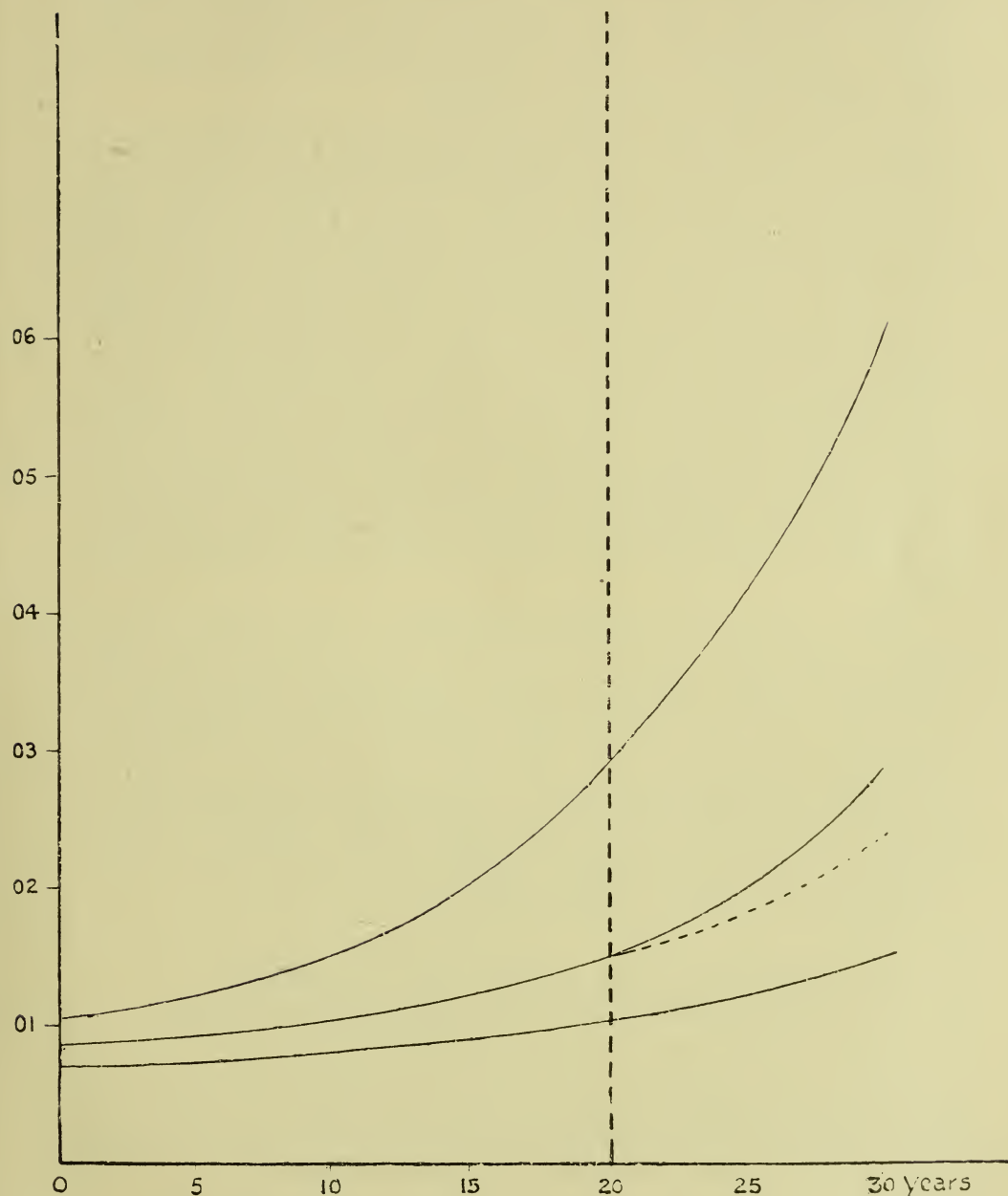
to pay surrender values based on these normal reserves. Due allowance should be made, when necessary, for the fact that the true reserve is less than that kept by the Office.

6. THE CONDITIONS UNDER WHICH THE NORMAL PREMIUM IS APPLICABLE.

As has already been pointed out, although there are many cases of extra risk in which Double Endowments can safely be granted at tabular rates, yet considerable discrimination is necessary to decide whether or not such a policy is suitable, and it will be instructive to consider under what circumstances the normal premium is applicable to an extra risk.

In this connection I would draw attention to the accompanying diagram representing three different series of rates of mortality, each of which gives premiums for Double Endowments which for all practical purposes may be described as identical. For purpose of my argument it will be sufficient if we consider only a Double Endowment for a term of 30 years. Reference to Table VII. shows that during about the first 20 years the reserve is less than the sum payable at death, and that during about the last 10 years the reserve is greater than the sum payable at death. In other words, during the first two-thirds of the contract mortality heavier than that anticipated means a loss to the Office, and only during the last one-third does a similar heavy mortality result in a profit. The period during which a profit from heavy mortality can arise being so restricted, it follows that, for the conditions to be such that the premiums are equal, the *extra* mortality must rapidly increase towards the end of the term, and that a Double Endowment at a normal premium is quite unsuitable if there is any reason to suspect that the increased rates will not be maintained or that the rates will tend to revert to normal towards the date of maturity. Table VII. also indicates that for *all terms* the period of equality between reserve and death benefit is reached after about two-thirds of the term has expired.

RATES OF MORTALITY GIVING EQUAL ANNUAL PREMIUMS FOR DOUBLE ENDOWMENT ASSURANCES.



The perpendicular dotted line indicates the point after which, in the case of a "30 year" policy, light mortality is detrimental to the Office.

7. LIGHT MORTALITY AT THE END OF THE TERM.

A loss arising from light mortality at the end of the term is quite as serious a matter for an Office as a loss from heavy mortality during the early years, yet, whereas various medical and other reports are obtained to guard against the latter, the former in most Offices is left to take care of itself.

When we consider the light mortality to which annuitants are subject, and that the lives on which Double Endowments are issued are, at the end of the term, similar to annuitants in that their death will result in a financial loss, I think it must be admitted that there is certainly a prospect of experiencing, in the years immediately preceding maturity, rates of mortality considerably lighter than will be satisfactory to the Offices concerned.

It appears to me that the ordinary without-profit Double Endowment Assurance is lacking in that it provides no safeguard against this light mortality and that a with-profit policy is preferable, particularly if (as is the case with one Office) the bonus is payable at death only and restricted to the last one-third of the term.

With a view to illustrating this point I have drawn on the diagram referred to above a dotted line representing assumed light mortality at the end of the term, and, reading off the rates of mortality which the dotted line represents, have calculated to what the annual premium would have to be increased in order to provide for this light mortality. I have also calculated what the loading would be to provide a simple reversionary bonus of 40s during the last 10 years of the term.

1. On the basis of the ordinary rates of mortality.
2. On the basis of the assumed rates of light mortality.

The resulting figures are given below and show how a bonus of this description automatically makes provision for a variation from the assumed rates of mortality at the end of the term :—

“Normal” Mortality. Assumed Light Mortality.

	£	s.	d.	£	s.	d.
Annual premium for						
Double Endowment	4	3	11	4	4	6
Loading for Bonus -	0	4	1	0	3	8
	<hr/>			<hr/>		
	4	8	0	4	8	2
	<hr/>			<hr/>		

The differences between the premiums and the loadings are quite small, and the illustration on that account is not a particularly happy one, though in other respects it serves my purpose. Much larger differences could be brought out without making any unreasonable assumption as to the light mortality.

Similar considerations apply, but with less force, when the ordinary reversionary bonus on endowment assurances is given. If lighter mortality than that anticipated is experienced at the end of the term the premium charge^l will be insufficient, but, on the other hand, the bonus loading will be greater than necessary and will tend to counteract the loss which would otherwise arise.

CONCLUSIONS.

It will now be appropriate to set out briefly the principal conclusions arrived at in the course of this paper:—

1. That the practice of charging premiums constant for various ages at entry and fixed only with reference to the term is quite sound provided a limit is set to the age at maturity. This limit should not be later than age 70.
2. That many lives subject to extra rates of mortality (whether due to occupation, foreign residence, personal condition, or family history) may be accepted at normal rates of premium for Double Endowment Assurances, but that discrimination must be shown in considering the incidence and amount of the extra mortality which is anticipated. As regards “climate extras” the age at maturity probably should not exceed 55, if an extra premium is dispensed with, and the probable age of retirement should always be taken into consideration.
3. That if an extra premium is charged it should be at a lower rate than that charged for other classes of policy.

4. That Double Endowment Assurances are very suitable for a scheme of Life Assurance without medical examination.
5. That proportionate paid-up policies can safely be granted on cessation of payment of the premiums.
6. That with-profit policies are preferable to without-profit policies in that they minimise automatically the effect of light mortality at the end of the term, and that the most suitable form of bonus is a reversionary addition to the sum assured payable only in the event of death during the last one-third of the term.

APPENDIX.

Tables A, B, and D require no special explanation. They are all calculated at 3 per cent. interest; Table A on the $O^{[M]}$ mortality table Table B on the same basis the ages being taken as 10 years higher than those actually attained; Table D is based on the "ultimate" table into which the $O^{[M]}$ select tables merge at the expiration of 10 years from the date of selection.

Table C.—The premiums in this table were constructed from hypothetical rates of mortality given by Mr. Lutt (*J.I.A.*, Vol. XLI., p. 461).

The actual rates for quinquennial ages are given below together with the $O^{[M]}$ rates for age at entry, 20, as a basis of comparison.

RATES OF MORTALITY.

Age.	$O^{[M]}$ Table. Age at Entry (20).	Hypothetical "Early Risk" Table.
20	·00261	·00652
25	·00602	·00850
30	·00757	·01440
35	·00846	·02080
40	·00986	·02250
45	·01205	·02180
50	·01546	·01980*

* Normal from 55 upwards.

The "early risk" table is practically a "select" table applicable only to ages at entry in proximity to age 25.

Table E.—The premiums in this table were constructed on the assumption that the rates of mortality were throughout ·01 in excess of the rates shown by the $O^{[M]}$ table.

This is given practical effect to by assuming that the 3 per cent. annuity-values under the hypothetical mortality table are equal to the 4 per cent. annuity-values under the normal table. Entering the appropriate 4 per cent. term annuity in a 3 per cent. premium conversion table we have the single premium for an ordinary endowment assurance; and $a_{x:\overline{n}|} - a_{x:\overline{n-1}|}$ (both at 4 per cent.) gives

the 3 per cent. single premium for the pure endowment. Adding together the two single premiums and dividing by the 4 per cent. term annuity-due ($a_{x:\overline{n}|}$) we obtain the annual premium for a Double Endowment at 3 per cent. on the basis of the assumed rates of mortality.

(This method of dealing with a constant extra rate of mortality was suggested by Mr. Makeham, and has been used in several investigations into the effect of extra mortality upon premiums, reserves, &c.)

Table F1.—The premiums in this table were constructed on the assumption that the rates of mortality were throughout about 60 per cent. in excess of the rates shown by the $O^{M(5)}$ table. In this case the $O^{M(5)}$ table was used in preference to the $O^{[M]}$ on the ground that the effect of medical selection may appropriately be set off against the extra risk incurred during the critical period whilst the life assured is becoming acclimatised, the early years of assurance and the period of acclimatisation being frequently concurrent.

The actual method of construction was similar to that employed for Table E and already described, the 3 per cent. annuity-value by the hypothetical table being taken as equal to the normal $3\frac{1}{2}$ per cent. annuity-value for an age 5 years older.

The following are the rates of mortality for quinquennial ages : (1) by the $O^{M(5)}$ table, (2) by the $O^{M(5)}$ table adjusted as above, (3) according to the “British Empire” experience of Europeans in India (given by Mr. A. T. Winter in Transactions of Fifth International Congress of Actuaries, Vol. II., p. 75).

RATES OF MORTALITY.

Age.	$O^{M(5)}$	Table F 1.	“British Empire.”
20	·00652	·01167	·00781
25	·00689	·01227	·00895
30	·00747	·01315	·01038
35	·00837	·01456	·01215
40	·00978	·01676	·01453
45	·01200	·02019	·01804
50	·01545	·02555	·02345
55	·02083	·03388	·03187
60	·02921	·04683	·04496
65	·04221	·06672	·06507
70	·06219	·09706	·09564

The premiums by Table F1 probably exceed those which would be obtained from the “British Empire” experience, because

the rates of mortality under the latter table increase more rapidly than those under the former table.

(Rates of mortality which are greater than a standard home table by what is approximately a constant percentage have been a feature of several published experiences of tropical mortality.)

Table F 2 is identical with *F 1* when the age of maturity does not exceed 50. When the age at maturity exceeded 50 the 3 per cent. annuity-values were obtained by means of the formula :

$$3\frac{1}{2} \% \quad 3\frac{1}{2} \% \quad 3 \% \\ a_{x+5. \overline{50-x}|} + \frac{D_{55}}{D_{x+5}} \quad a_{55 \overline{x+n-50}|}$$

which has the effect of providing the percentage increase in the rates of mortality up to age 50, and above age 50 the rates for ages five years above those actually attained. It is thus assumed that after retirement the previous residence in a tropical climate will have such an effect as may be measured by an addition of five years to age.

After obtaining annuity-values by the above formula the procedure was as in the construction of *Table E*.

THE CLAIMS DEPARTMENT OF A LIFE OFFICE.

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*A Paper read before the Insurance Society of Edinburgh,
17th December, 1907.*

VARIOUS papers on sundry aspects of the law affecting Life Assurance have been read before this and other Insurance Institutes. Some of these deservedly rank as classics in the particular sections to which they apply. Yet the view has been expressed that they present difficulties to others than close students of the law. It is the unambitious object of these few notes to fit certain points of importance therefrom, along with such others as may appear to be complementary, into a light framework of official procedure and organisation. There will be no attempt to discuss over-difficult or abstruse questions, but merely, as it were, to introduce my younger brethren to a Claims Department, describing a few of its outstanding features, and presenting to their notice matters likely to be interesting, instructive, or stimulating. By this means it is hoped that should any of them subsequently enter such a department, he will not be altogether at sea, however different its practice might be from the partly imaginary one here described.

By way of preliminary, however, a few words of introduction.

It might on first thought be supposed that the settlement of life assurance claims should be no very elaborate matter, scarcely seeming to call for the labours of a special department and the expenditure of large experience and ripe judgment; yet reflection will show how the matter develops and becomes complicated, for, while it is true that the claims for the most part pass through simply and easily enough, there are some that provide difficulties and pitfalls, calling for ever-active vigilance. Beyond this, still more, the Claims Department, necessarily requiring much legal knowledge in the ordinary course, has in that respect

an accretive tendency, being apt to become more and more a Legal Department for the whole office, an Advisory Board on all kinds of legal conundrums, a Court of First Instance, as it were, which has to pass judgment before any case is submitted to the Office Solicitor.

Thus the duties will be seen to be :—

(1) Those properly appertaining to the settling of claims.

(2) Such other duties as are more conveniently carried out in such Department than elsewhere (*e.g.*, the carrying through of loans, &c.).

(3) Other assistance, usually of a simple legal nature, that it may be possible to render, to avoid the delay and expense of a formal reference to Legal Advisers.

Before proceeding further, step into the Claims Department itself and let us discuss things a little more closely. It will be admitted that the work of the Department, if it is to be done well, must be carried on in suitable quarters, and hence a preliminary survey of the premises will be in order.

This small ante-room is used as a place for interviewing claimants, borrowers, &c. It is clear that it is preferable they should not be seen within the Department itself, where their presence would distract, and equally it is advisable that there should be at disposal some spot more retired than the general office. The interview may sometimes be long, and borrowers especially are occasionally sensitive lest knowledge of their operations become public property.

Here is the larger room wherein the general work of the Department is carried on—high, well lighted from two large windows, and less cumbered with big volumes than many of the Departments. Mainly, that is, because the books of record, &c., are kept either in the small room beyond, or in the general office through the sliding door to the left, at present standing open.

Now that small room is of far more importance than might appear, and much thought has been given to its contents. Observe that the doors are of great thickness and evidently very heavy, suggesting that the room is a safe. This it is, in fact, the idea being that were the whole building destroyed by fire this room would be preserved, and the volumes in it would supply the bare essential information regarding all the business of the Office, which would enable its affairs to be carried on without involving hopeless chaos.

Above this room on the next floor is another for storing other valuable documents, such as security bonds, &c.

Returning to the main room, it will be noticed that a young man has just brought in a basketful of letters, representing the first portion of the day's post. These are handed to the Head, who looks them over, distributing the bulk to those of his assistants most fitted to deal with them.

But before pursuing this aspect further, some few words must be devoted to the nature of the business transacted.

A man desires to assure his life; he makes application on what is called a Proposal Form, giving certain information regarding himself, known as a "proposal." It may be observed that the proposal should be filled up in the handwriting of the proposer; but if for any reason the agent should fill it up, he does so as agent of the proposer and not as agent of the Office. Then forms are filled up by friends of the proposer; these are called Private Friends' Report Forms. Probably he was introduced by an agent, who completes an Agent's Report Form. Then a physician nominated or appointed by the Office has to examine the proposer as to his eligibility for life assurance, and if the proposal is for a large sum, it may in some cases be necessary to have a further report from the proposer's private medical attendant. All these documents are, for short, called the Proposal Papers, and are usually preserved together in bag-shaped envelopes or covers which are filed in numerical order.

The proposal having been accepted, a Letter of Acceptance is issued, followed, on payment of the premium within a limited period thereafter, by a provisional receipt, the policy being delivered subsequently. Then, too, there are special features that may occur here. Thus, the life assured may not be the proposer; another person may be assuring his life, or the proposal may be on several lives, or the proposer may be assuring his life for the benefit of his wife under the Married Women's Property Acts. It will be understood that the procedure here described is but one of many. It is not claimed to be the best, but is workable, and, it is believed, easy to follow.

A very little reflection will show that many difficult or delicate legal points may already have cropped up—insurable interest, agency, representations, warranties, stamp duties, commencement of risk, payment of premium, policy conditions, &c., all of which are certain enough to be handed over to this Department. It is not, however, proposed to deal with them further here; careful attention has been devoted to them in other papers on the subject.

The policy then is now issued, and shall be assumed to be on the proposer's own life for the whole term of life, with participation in profits.

It is at once a document of value, becoming indeed more valuable with every premium paid, until at last the claim arises, when, of course, the value is greatest. During the existence of the policy it may become the subject of dealings, and it is of the utmost importance to determine accurately the nature of these dealings, since on this will depend our knowledge of the persons to whom the sums assured should be handed over, when the policy becomes a claim.

At the date of claim—

- (1) The policy may be in the possession of the assured himself, either through the absence of any dealings with the policy, or because it has come back into his possession again.
- (2) It may belong absolutely to some other person or persons, either for their own benefit, as purchasers under an absolute assignment, or for the benefit of third parties, if they are trustees.
- (3) The assured may have parted with certain rights in his policy, retaining the reversion, as, for example, he may have borrowed money and in return given an assignation in security.

Opportunity may here be taken of mentioning the special Scotch custom of making what is in form an absolute assignment, but attaching to it what is termed a "back-letter," wherein undertaking is made to reassign if certain conditions be fulfilled. The question has been raised whether the Office should interest itself in the existence of such a document, and as diverse views have been expressed, it would be of much interest were some attention to be directed to this point in the discussion. [The opinions expressed were to the effect that the Office should not concern itself with back-letters.]

The Office knows—or should know—all that is going on regarding its various policies, for the Policies of Assurance Act, 1867, practically compels assignees to give notice to the Office of the date and purport of the assignments under which they hold, in order to be able to sue in their own names.

Usually the Office receives a notice in duplicate of each assignment and reassignment, and, in return for a fee of 5s. authorised by the above Act, returns one of the duplicates with an

acknowledgment of intimation thereon. Sometimes no duplicate is sent, and the notice is retained by the Office, acknowledgment of the intimation being given if desired. The acknowledgment will usually state that no admission as to the validity of the relative deed is expressed, but merely that the notice has been received and recorded (see No. I. of Appendix), and an analogous statement will be made should the deed itself be sent for inspection (see No. II. of Appendix). The value of the acknowledgment to the assignee is to prove that the Office received the notice—in case through carelessness or otherwise it became lost without being recorded. The date of this acknowledgment may be very important, as it may determine the priority of assignees as *e.g.*, in the case of bankruptcy.

From the above it will be seen that an important duty in our Department is:—(a) To record against policies the notices of dealings affecting them; (b) to preserve carefully the notices themselves.

There are differences in practice on both points, and no pretence will be made to indicate the best. Individual fancy counts for much, and probably it does not greatly matter, if only there be consistency and care.

Thus as to (a), some Offices keep a special register in which are duly entered particulars of all notices which are either indexed up and so referred to on occasion, or some further reference is carried to the Copy Policy Book or to the Policy Register. Possibly this is less advantageous than to make arrangements for a direct entry into the Copy Policy Book or what serves as such.

Some Offices preserve actual duplicates of each policy written, others a bare note of the general form used, adding in full any special provision. In either case it is no difficult matter to interpolate leaves all along whereon particulars of notices of assignments, &c., may be written. This may also be employed for other purposes, as, *e.g.*, endorsements as to changes, or if the policy be lost or under forfeiture through non-payment of premiums, &c.

As to (b), the main difference of opinion is as to whether the notices themselves should be all fixed into one book together, or filed away say with the proposal papers. The latter is most convenient for many purposes, but all having experience of office work will know that there is real risk of any loose document going astray, especially if its absence may escape notice for years—and it should be mentioned that an Office may at any time be called upon

to produce the original notice in a Court of Law. This liability to produce is also—though, it may be held, in a lesser degree—the trouble when all the notices are bound together. It is not an unknown case that such a bound volume, containing naturally hundreds of other notices, has had to be conveyed long distances to await the proverbial procrastination of judicial procedure. The inconvenience caused in an Office by such a course need not be described in detail.

Every reputable Life Assurance Office allows to its policyholders certain privileges: it will grant loans on security of the policies, or transform the policies into paid-up assurances free of future premiums, or grant a value for bonuses, and various other options are available. Any such dealing must, of course, be carried through in legal form, and hence falls naturally to the Claims Department.

Let us suppose a loan is desired. The policyholder has probably ascertained from the Actuarial Department already how much he can get, and writes for the amount. This letter will come to the Claims Department, when the following steps must be taken:—

- (1) Look up the notices affecting the policy to see that the applicant is entitled to borrow, and observe also that the policy is in force.
- (2) Get from the Actuarial Department a statement of the value. In some Offices also that Department supplies a bag-shaped envelope into which will be inserted the loan bond and other papers affecting the loan, and containing on the outside sundry particulars regarding the policy.
- (3) Prepare a loan bond for signature by the borrower.
- (4) Send the loan bond to the Inland Revenue Office to be stamped, if a stock of stamped forms is not kept in the Office.
- (5) Advise the borrower to call for the money (or as otherwise arranged), to sign the bond and deliver up the policy.
- (6) Have the amount of the loan entered in the Loan Registers for the book-keepers.

Such is the simple procedure if the title be clear, if there have been no dealings with the policy. But if there have been dealings, the applicant must be instructed to submit the policy and all deeds affecting it, that it may be seen whether he really has the power to borrow. In case of surrender, a similar procedure has to be

gone through. As to the varieties and complexities of this question, a whole volume might be written.

We shall instead hasten on to the final and decisive stage, when a claim has arisen. This incidentally will through many a side-light on the principles which must govern intermediate dealings, although it has to be borne carefully in mind that the two cases are by no means on all fours.

One morning a letter is received stating that Mr. A., the assured, is dead, and asking what steps are requisite in order to obtain payment of the sums assured.

The first thing to do is to look up the books as before and get out the original proposal papers.

Our guiding principles must be :—

- (1) To make certain that a person of the name given is dead, and
- (2) That the person dead is really the life assured.
- (3) To get evidence of age, if not already furnished.
- (4) To ascertain who are the persons who can give a full legal discharge for the policy monies.
- (5) To take care that no statutory liability remains unfulfilled by the Office, and lastly,
- (6) To see that the money is handed to persons duly authorised to receive it.

In the usual course a stereotyped letter would be issued to the claimant, along with forms to be completed by (1) the medical attendant at the last illness, to prove the death (see No. III. of Appendix); (2) a personal friend of the deceased to prove identity (see No. IV. of Appendix).

This letter should narrate that the sums assured become payable on production of proof of death and of title to the policy satisfactory to the directors. An explanation of these should also be given, thus :—

“THE PROOF OF DEATH required in ordinary circumstances consists of (1) Extract from Register of Deaths; (2) Certificate by the medical man who attended deceased in his last illness; and (3) another by a person who can testify to the identity of the deceased with the person whose life was assured. Forms of Certificate enclosed herewith.

“THE TITLE required usually consists of (1) the policy itself; (2) all assignments or other documents by which it may at any time have been conveyed from or reconveyed to the

member; and (3) 'Confirmation,' 'Probate,' or 'Letters of Administration' to the estate of any person deceased having an interest in the policy, whether as member, or as assignee, or otherwise."

It should further be stated that when the directors have received and approved of such proof of death and title, a receipt will be forwarded for execution, while a note of the policies in question and the sums payable may suitably be attached.

This in simple cases may sufficiently cover the various points, but it will be well at this stage to treat each with more thoroughness, and to deal with such cases as may arise. For this the more strictly legal aspects have to be considered. Yet even here some words of caution may be permitted. The public estimation in which a Life Office is held is much influenced by the manner in which it settles claims; promptitude, and readiness to assist in overcoming difficulties, or to run any trifling risk due to some minor technical defect, bulk very largely. On the other hand, unnecessary risks must not be run, since it would be a serious matter to be compelled to pay a claim twice over. It is here, in difficulties such as this, that the above-mentioned knowledge and experience come into effective play. It is obvious that no definite rules can be laid down, and in all cases of doubt the Office Solicitor should be consulted, even though his technical opinion can be forecasted. And in spite of this, the General Manager may accept the suggestion of the Claims Chief that he is reasonably satisfied that all is "above-board," and that something less than the strict legal demands may be passed.

The Burden of Proof (see Bunyon's "Law of Life Assurance," 4th Edition, p. 596, &c.) of the event (generally death or survivance) having happened, it will be gathered, in all cases rests with the assured, who must tender due evidence to the insurers. In the policy it is usually stipulated that the evidence produced must be satisfactory to the directors—satisfactory here meaning sufficient (*Strong v. Harvey*).

In the Scotch case of *Ballantine v. Employers' Insurance Company* (31 Se. L. R. 230), where the policy required the representatives of the deceased to furnish all such information and evidence as the directors should consider necessary or proper, the Office demanded a *post mortem*, which, not being done, the company refused to pay. The Courts held that there had been no application for the examination to any person authorised to give

it, and consequently no refusal to supply information ; but further intimated that the condition did not entitle the directors to demand a *post mortem* examination at all.

In ordinary cases where the death occurs in the United Kingdom a death certificate, to be obtained from the Registrar of Deaths, will be required, and, in most Insurance Offices, an additional certificate, to be signed by the medical attendant of the deceased stating the cause of death and the duration of the illness.

The official death certificate will be in the form prescribed by the General Registry Acts, (6 and 7 Wm. IV. c. 86, 37 and 38 Vict. c. 88 for England ; 43 and 44 Vict. c. 13 for Ireland ; 45 and 46 Vict. c. 47 for Scotland, but this does not apply to policy claims), on which it will be observed that the cause as well as the fact of death is certified by the medical attendant. When a British subject dies at sea on board a British ship similar evidence is to be obtained from the Marine Registry and log-book extracts, and in the case of military or naval persons on active service, from the War Office or Admiralty. When death occurs in any of the colonies or in a foreign country, the best evidence to be obtained under the circumstances and according to the custom of the country should be furnished. In many countries reliable official registers are kept, certified copies of which when duly authenticated would be the proper evidence to be given.

Occasionally it is difficult to procure definite evidence of death, as, *e.g.*, where a man went abroad and was never again heard of, or disappeared from on board a steamer, or whose clothes were found by the sea-shore, the body never being recovered. In the case of a disappearance, it is a rule of law (but not applicable to Scotland) that a presumption of death arises at the expiration of seven years (in conformity with the statutes 19 Car. 2 c. 6 as to Estates *pour autre vie* and 1 Jac. 1 CII. s. 2 against bigamy), not that the death occurred at the beginning or end of any particular period during the term, but that after it has elapsed the party is not living. Moreover, sufficient inquiry must have been made, and if there is any doubt, it becomes a question of fact to be decided by a jury. The claimant must prove the death, but what constitutes sufficient evidence is not easy to gather ; presumptive evidence, however, may decide the question, as, *e.g.*, if the assured were on a small ship that must have been overtaken by a violent storm and the ship was not heard of for two years, it was held

that this was sufficient evidence to warrant a jury in finding that she was lost in the storm, and that the assured perished with her (*Paterson v. Black and Park*).

The proper ruling was much discussed in the case of *The Prudential v. Edmonds* (2 App. Cas. 487, quoted in Bunyon, 4th edn., p. 529), in which the question to be decided was whether Robert Nutt, the assured, who left home in 1867, was alive or dead in April 1874, when the action commenced. A relative stated that she had seen him alive in 1873; but the circumstances were such that she might have been mistaken. The jury, under the direction of the Judge, declaring,

“That it was impossible to say the man had not been heard of when admittedly he was said—though perhaps erroneously—to have been seen,”

found a verdict for the Company. The Court of Appeal ordered a new trial on the ground of misdirection. On Appeal from this decision the House of Lords was equally divided, but all the Lords, however, considered that the verdict was probably right.

Thus it will be seen that when the claim is made it is not always beyond doubt that the assured is dead. Disappearance and supposed death by drowning or other accident are not altogether infrequent, and it is clear that temptation to fraud has some bearing here, and it is the duty of the Office to make very careful investigation should there be anything to arouse suspicion.

Thus the wife of a certain man assured duly claimed the policy monies. It appeared that he had visited a seaside town where he had resided in earlier life, had gone to swim, and had presumably been drowned, as his clothes were found on the seashore and were not reclaimed by him. So far well, but it became rumoured that he had been seen at the railway station, and further that the ancient advice of *cherchez la femme* was apposite. So it appeared, for when the lady left home some time afterwards she was watched—and the claim was not paid on that occasion.

On other occasions, however grave the suspicion may be, all attempts to obtain evidence may fail, and then it is usually best to settle. For, although in theory the fact of death has to be satisfactorily proved by the claimants, questions of policy now come in. And it has to be remembered (*a*) that an Office that disputes doubtful claims loses reputation—it should only contest clear cases; (*b*) that juries do not favour Companies as against individuals. Still, legally, the Office is not bound in Scotland by the Act of 1891

(54 & 55 Vict. c. 29), which provides that in all cases where a person domiciled in Scotland has disappeared without being heard of for seven years or upwards and no presumption arises that he died at any definite date, he shall be presumed to have died seven years precisely from the time of his last being known to be alive—for life assurance policies are expressly excluded from this; nor is the Office bound in England to accept as reasonable proof an order of the High Court made in pursuance of 6 Anne c. 18 declaring that the assured is to be deemed to be dead so as to allow the person entitled in remainder to his property to enter into possession. (*Doyle v. City of Glasgow*, 53 L. J., ch. 527.)

It was pointed out that if the assured reappeared he might get his property again, but the Life Office would have little chance of recovering the policy monies. Still, when such order is made, it behoves the Office to endeavour to trace the assured, for in one case it was ruled that notice of the application for the order should be given to the Office. (*Re Barber*, 11 P. D., 78. *Re Kirkbride*, L. J., n. c., 1891, p. 96.) After such notice the Office might be bound by the Order of the Court. Speaking practically the view may be ventured that what it comes to is this, that in cases of doubt the Office can claim a reasonable time to make inquiries for its own satisfaction, without much fear of an adverse judgment should the claimants be over-impatient and press an action for payment. Yet, after such attempts as may appear practicable have been made to trace the assured, but without success, settlement is the best solution of the difficulty.

PROOF OF AGE.

If evidences of the date of assured's birth have not previously been submitted—in other words, if the age has not been admitted, such evidence must now be produced. In the case of a British subject, a certificate of birth, to be obtained from the General Register Office, is conclusive legal evidence. But there are still cases which are not entered, and for these other evidence must be sought. Sometimes the baptismal certificate has to be accepted, but, of course, the assured might have been several years old when baptised. Various religious communities also keep records which afford the necessary evidence. When such fail, recourse must be had to entries in family bibles or to other memoranda, to senior relatives or to “oldest inhabitants.”

In most of the European countries, especially where military service is compulsory, there is no difficulty in procuring reliable proof of age.

Even here, however, it is not always certain that the person whose birth is recorded is actually the assured. It is not uncommon for a person to be known by another Christian name, and so completely to forget his true name as to have the policy written in the assumed name. When death occurs at advanced age, it is very difficult to get any evidence to clear up the doubt in such cases as this—but here again policy steps in, and says that at such an advanced age a less rigid attitude may be assumed, indeed it has to. This is apart from changes of name by Deed Poll; by Royal Licence or Act of Parliament, when the licence with the Royal sign-manual affixed, and the Gazette or copy of the Act of Parliament may be produced; or by marriage, when the marriage certificate can be called for.

Foreigners are occasionally rather troublesome in this matter, for they frequently adopt a British name without going through any legal procedure; when their own has been obviously anglicised it is not so bad, but to identify an unpronounceable Polish name with the simple and common Harris or Brown is no easy task.

Regarding the two certificates to be produced, certificate by the medical man who attended the deceased in his last illness, and that of identity which should be completed, if possible, by some personal friend or acquaintance, neither interested in the policy nor related to the deceased—these, as we have seen, are self-explanatory; but in connection with deaths abroad, special mention should be made of the importance of requiring that the certificates, if completed by persons not resident in the United Kingdom, should be signed in presence of, and the signatures attested *under seal of office* by the British Consul, or other local official in whose presence such documents are usually completed.

When death occurs at sea, a certified extract of the event from the Register of Shipping and Seamen should be obtained along with the certificate, together with some evidence that the assured did actually sail on the ship. This may take the form of statements by ship's officers or fellow-passengers. In these cases of death abroad also, it will be well to ask for the production of letters to friends in this country wherein reference is made to the death. Having become satisfied as to the fact of death, a communication may be sent to the claimants advising them of this, and

stating that the sums assured will be payable after the title to the policy has been produced and found satisfactory to the directors.

CLAIMS BY SURVIVANCE.

Before passing on, however, it may be well to digress for a little and discuss the simpler case of a claim by survivance under an Endowment Assurance, a class which is becoming numerically more important every year. The Actuarial Department should supply towards the end of each year a list (readily compiled from their Valuation Cards or Class Books) of all the Endowment Assurances which will mature during the coming year. The Claims Department should look into each case some time before the due date and enter into communication with the member, so that if possible prompt payment may be made. A printed form may be issued to the policyholder (see No. V. of Appendix), on which he may make application for the amount payable, and this course has the advantages of saving correspondence, and showing the applicant clearly what he has to do to secure payment.

THE TITLE.

The next step is to ascertain the person or persons from whom a proper legal discharge for the policy monies can be obtained, to whom, in short, payment can safely be made. When the policy becomes a claim, it should be delivered up to the Company, though if it be lost its non-production will not debar the parties from recovering, but the Company will be entitled to demand an indemnity. In the event of no dealings being recorded, this person will be the legal personal representative in England; all the personal property, including *choses in action*, of which a policy is one, passing (as the case may be) to the executor or administrator by virtue of the probate of the will.

In Scotland (see Crosbie, "Daily Questions of Legal Title," *Journal of the Federation of Insurance Institutes of Great Britain and Ireland*, Vol. IV., p. 335) the proper title to be produced to the Company is the confirmation or warrant issued by the Sheriff entitling the executor to uplift and administer the movable estate of the deceased, as contained in the inventory on which the confirmation proceeds. The confirmation must be of the whole movable estate of the deceased, and if part, say the policy, be omitted, the executor must take out an additional warrant or eik.

In the case of large estates, however, it is not unusual for the executors to take out an eik for the policy monies apart from the general estate, in order to have some ready money to go on with, or to pay death duties.

In this case the precaution to be observed is to see that the eik covers any bonuses that may be attaching to the policy, as well as the original sum assured.

When any sole or last surviving executor-nominate has died, with funds in Scotland standing in his name as executor, confirmation by his executors-nominate to his proper personal estate shall, whether granted before or after the passing of the Act, be valid and available to such executors for recovering such funds, provided a statement thereof shall have been appended to the Inventory (Executors Scotland Act, 1900, sec. 6). Where one of two or more executors dies, the office accrues to the survivor or survivors, and executors, like trustees, may act by a majority of their number as a quorum, unless the trust-deed provides for a quorum.

It is important to observe whether any executor is appointed *a sine qua non*, so that if need be any discharge to the Company shall have his signature or consent.

Where no one comes forward to take out confirmation as executor, it is open to any creditor of the deceased to be confirmed as executor-creditor to so much of the estate as will enable him to make good his debt.

Probate.—In the case of persons dying domiciled in England or Ireland the Probate or Letters of Administration granted in these countries and bearing that the deceased died there, must, in order to be effectual in Scotland, be produced in the Commissary Court and a copy thereof supplied to the Commissary Clerk, who thereupon endorses the principal document to the effect that it has been produced and a copy deposited. The Probate or Letters will then have the like effect as if confirmation had been granted in Scotland; and it is essential to see that these formalities have been complied with, unless, of course, the Office has a special Act of Parliament whereby it has acquired a domicile in these countries.

Foreign Grant of Representation.—The Revenue Act of 1889 enacted that in the case of persons dying domiciled abroad it should not be necessary to secure Grant of Representation (Confirmation, Probate or Letters of Administration—Crosbie, *op. cit.* p. 361), but it is necessary to have proof (1) that the person effecting the assurance died domiciled abroad; (2) that the grant is properly

made in accordance with the Law of Domicile of the deceased. As regards the colonies this is usually termed an exemplification. If the grant be in a foreign language it should be accompanied by a certified translation thereof by, or attested by, the British Consul.

When dealings are recorded affecting the policy, matters become more complicated, and great care must be exercised. The assured may have parted altogether with his rights in the policy, and this may be by what is called an absolute assignment, or he may have retained certain rights.

Assignments in short may be divided into three classes, viz., absolute, by way of mortgage, and in trust. In an absolute assignment the assignor completely divests himself of all interest, past, present, or future. When the assignment is by way of mortgage the mortgagor does not assign away his entire interest—he has still an estate, technically known as the “Equity of Redemption,” which really means his right to pay off all his mortgages.

By Section 22 of the Conveyancing and Law of Property Act, 1881 (which, however, does not apply to Scotland), a mortgagee, where the mortgage is made by deed dated after 1st January, 1882, is empowered to give a good discharge for all monies payable under his mortgage. In cases where the mortgage deed is dated before the 1st January, 1882, or where the mortgage, irrespective of date, is not created by deed, the assent of the mortgagor’s representatives would probably still be asked for. In Scotland, unless the bond and assignation contains a power to discharge, the personal representatives of the mortgagor should join.

All documents connected with the notices should be asked for, as their non-production may be due to the fact that they have been deposited as security elsewhere, or the dealings may be such as to irrevocably divest the assignor of the power of further conveying. It, however, by no means follows that a Company has a right to demand production of all documents of which it has notice, and a good deal of discretion has to be exercised as to what deeds should or should not be insisted upon. A large proportion of policies issued sooner or later find their way into the hands of a banker as security, and when the loan is repaid the policy and mortgage are simply handed back, no release being executed, and the question arises as to how the mortgage must be released before the mortgagor is paid.

The general rule as to conveyances is that any agreement must

be released by the same method as that by which it is created ; if by deed, the release should be by deed ; if by other writing, then the reconveyance should follow the same form ; but on the other hand it has been decided that a mortgagee may release the mortgage by simply writing " cancelled " across it and signing his name (see Howell, " Assignments of Policies of Life Assurance," *Journal of the Federation of Insurance Institutes of Great Britain and Ireland*, Vol. VI., p. 373), (*Harrison v. Owen*, A. & K. 520 ; *Goold v. Adams*, 13 L J N S Ex. 40).

Moreover, it is not necessary that any reconveyance duty be paid ; a receipt stamp is not even required if the mortgage be duly stamped (*vide* Stamp Acts—Receipts, Exemptions). Many varying opinions have been held as to whether a receipt stamp is required in the case of a receipt endorsed on a policy, but it is understood that the Inland Revenue authorities have at last conceded that there is no necessity for such a stamp.

If all the documents produced relate exclusively to the policy they should be retained, but if they deal with other property they must be returned, and an undertaking for their production obtained. This undertaking to produce (see No. VI. of Appendix) is liable to agreement duty of 6d. Bunyon says that in addition to the undertaking to produce, certified copies of the documents should also be supplied at the claimant's expense. But frequently it will not be found desirable to endeavour to insist on such copies being supplied. And in dealing with persons of standing there does not seem to be any imperative necessity. While on the subject of production of documents it may be noted as a matter of practical interest that in *re Haycock's policy* (1 Ch. D. 611) it was held that a Company was justified in refusing to pay the absolute assignees of a policy until it was satisfied that a prior mortgage of which it had received notice, many years previously, had been satisfied, and that it was the duty of the claimants to satisfy the Company on this point.

It is very doubtful if the mere deposit of a policy would give the depositee power to discharge the Company without the consent of the personal representatives of the assured. In fact the cases of *Dummen v. Hare*, *Crossley v. City of Glasgow Company*, and *Webster v. British Empire Mutual Company* go to prove that he has no such power. In the first case a policy was handed over as a gift and it was decided that while the instrument itself passed there was no right to recover. In the second case policies were

deposited in security, and on action brought to compel payment without consent of the personal representatives of assured, it was held that the Company were justified in refusing to pay without their consent. The contention in the last case was similar to that in the second, and the Judge went so far as to lay it down that if the assignee in such a case subsequently makes good his claim, the Company will not be bound to pay any interest from the date on which the claim fell due. These cases suggest the method usually adopted to overcome defects, outside stamp duty, in a title, viz., joining the assignor or his representatives in the discharge as consenting parties to the payment to the assignee.

In the case of trusts the trustees are the only parties with whom the office can deal, and they are entitled to receive all monies, and to give receipts therefor.

Trust property is usually vested in two or more trustees, and the 38th section of the Conveyancing Act, 1881 (which does not apply to Scotland), provides that in the event of the death of one or more of the trustees the trust-estate shall vest in the survivor or survivors for the time being. If all the trustees are dead, and the executor of the last deceased trustee claims payment, refusing to appoint new trustees, it would appear that a payment to him is good.

The Trustee Act, 1896, enacts that "It shall be lawful for a trustee to appoint a banker or solicitor to be his agent to receive and give a discharge for any money payable to such trustee under or by virtue of a policy of assurance by permitting such banker or solicitor to have the custody and to produce such policy of assurance with a receipt signed by such trustee." While all the trustees must join in giving a receipt, the receipt of only one out of the several executors is sufficient. In Scotland a majority of trustees can discharge, unless the trust-deed otherwise provides for a quorum.

If there be conflicting claims to a policy, the Company may call on the parties to interplead, that is to say, it may insist that they contest the matter between themselves without making the Company a party to the action. In other words, and to divest the matter altogether of technicalities, a Company on being made aware that there are adverse claimants, may reply that the quarrel is none of its, and may leave the combatants to fight it out among themselves.

The Company may then get rid of the matter by lodging the money in Court.

In adopting this course the Company does not entirely shirk responsibility, and, if it appears to the Judge that it acted with unnecessary caution, it will have to bear costs of paying the money out.

The following information bearing on this point, taken from "The Companies Acts" lectures, by A. C. Clauson, delivered before the Institute of Actuaries, may be found useful :— " It has long been the practice of the Court of Chancery— or, to give it its modern name, the Chancery Division of the High Court—to allow trustees to pay money into Court when there is any doubt as to the ownership of the money, or as to what the various rights are of the various beneficiaries. Paying the money into Court means paying the money into the Bank of England to the account of an official of the Court. When the money has been so paid into Court, it can only be dealt with under an order of the Court, and the trustee who pays the money in is free from responsibility as to the division of the money, the Court undertaking to decide to whom the money belongs. The scheme of the Payment into Court Act of 1896 is to put life assurance companies into the same favourable position as trustees, as regards payments into Court. If a Company has any doubt as to the persons entitled to any policy monies, it may pay the policy monies into Court, and thus is freed from any obligation in respect of them. If any person considers that he has any claim to them, he must apply to the Court for payment out, and the Court will decide who is entitled to the money. As to the details of payment into Court, you will find some rules in Order 54 C of the rules of the Supreme Court. These rules provide in the first place that when a Company wishes to pay monies into Court, it must file an affidavit by one of its officers describing the policy, stating the various claims that have been sent in to the Company, and stating that the directors consider that no sufficient discharge can be obtained for the policy monies except by payment into Court. The Company must also submit to pay any future interest or any costs which the Court may see fit to order it to pay. The Company must also undertake to forward to the proper official any future claims which may be sent in to it. The Company is not allowed to take advantage of the Act if there is any action pending in relation to the policy monies. If any claimant has actually started an action, the Company must abide by the result of the action, and can not get rid of its responsi-

bilities by paying the money into Court. The Company must give notice of the payment into Court to everyone who makes any claim to the money; and when the payment into Court has once been made, no application with regard to the funds need be served upon the Company, but the Company may possibly be ordered to pay the costs in connection with the claim, and, if it is ordered to do so, it will be bound to do so, having regard to the undertaking to that effect contained in the affidavit already mentioned. There is one point to notice, and that is that the Company must pay into Court the whole of the policy monies; it must not deduct from the policy monies the expenses of payment into Court. These expenses will presumably be borne by the Company and represent the price it pays for being allowed to escape the responsibility of deciding to whom the money belongs."

Large assurances are often effected to meet the Death Duties, and years ago a queer little problem presented itself here. The receipt of an executor is good before Probate of the Will is granted, even should he die before obtaining; but, as the fact of his being executor can only be proved by the probate, and a debtor is entitled to have the evidence of the fact, legally testified and preserved, the executor must prove the will before the payment is made. It should be said that there is distinct necessity for caution in this point, for the title of the administrator depends solely upon the grant of the Court, and should payment have been made in terms of a will produced, there is risk, should the will be spurious, or a later one produced, that the Office may be compelled to pay the money a second time, unless probate had been obtained of the spurious or revoked will. On the other hand, it is believed that probate will not be granted until the Duties are paid, and so it is evident that some device must be resorted to. This was managed by the executors-apparent, as they may be termed, being accompanied to the Court by a representative of the Office taking with him a cheque for the requisite amount. But it was soon found that the Inland Revenue Authorities would accept the Office's cheque, and so that little difficulty was overcome. (See No. VII. of Appendix.)

There are one or two miscellaneous remarks that may be made, thus, when the assured is bankrupt at the time of his decease, his executor is not entitled, but the policy with the other *choses in action* vests in the trustee in bankruptcy (46 and 47 Vict., c. 52, s. 44).

The Probate or Letters of Administration must be taken out in a Court of competent jurisdiction and stamped with an amount not less than the particular demand, for the Probate can only be received in evidence where properly stamped, and a larger demand would prove the insufficiency. To ascertain the Court in which Probate or grant should be obtained reference should be made to Bunyon, 4th edition, p. 606, where the history and peculiarities of Probate Courts are fully described.

It is well to preserve along with the Papers a copy or extract of the principal provisions of the Confirmation, Probate, or Letters of Administration as the case may be. A form (see No. VIII. of Appendix) should be kept in stock by the Office suitable for the purpose. That the copy should be reliable, it should always be compared and signed by a responsible official. Incidentally, it may be remarked that similar copies should be preserved of the Probates, &c., of deceased trustees, assignees, and others through whom the rights in policies may pass. It is not proposed to deal more fully with this, except to recommend a study of the authorities, Bunyon, Currie, and others, especially the concise summaries of Crosbie (already mentioned) and Sprague (Transactions of the Faculty of Actuaries, Vol. II., p. 343).

A policy may be specifically bequeathed, and it is interesting to observe the curious way in which this comes about. The legatee becomes entitled, not because the policy is vested in him by the will, for, as has previously been remarked, the legal interest or the right to sue remains in the personal representative, but because the Court will not permit the executor, &c., to act counter to the will, but will make him a trustee in order that the intent of the testator may prevail (*Wright v. Wright* 1 Ves. 411, and other cases).

In consequence, however, of the rule of law that all dispositions of personal property are subject to a prior charge for the payment of debts, into which the Office need not inquire when paying the claim to the executor, &c., we have the practical office rule that the executor's assent must be given.

The title being at last brought into satisfactory shape, a form of receipt (see No. IX. of Appendix) may be prepared, special attention being given to the case of payments to trustees (see No. X. of Appendix).

In the preparation of these few notes, which it is hoped may smooth

the way of the student in approaching more profound treatment of the topics in question, and in endeavouring to impart an air of cohesion and reality to various points usually treated theoretically and apart, free use has been made in particular of Bunyon's "Law of Life Assurance," Howell's "Assignments of Policies of Life Assurance," and Crosbie's "Daily Questions of Legal Title." Mr. Constable's valuable paper on "Assignations of Life Policies and Legal Decisions Thereon," read before the Society last session, had not appeared in print at the time of writing.

I have further to thank my colleague, Mr Alexander Mann (as well as other friends) for kindly looking over the manuscript.

APPENDIX.

I.

TO BE STAMPED ON NOTICES.

Edinburgh, _____

A Duplicate of this Notice received by the

Society of this date.

(Sgd.) _____

NOTE.—In acknowledging intimation of the Deed mentioned in this Notice, no opinion or admission is expressed as to the validity of such Deed, or the legal effect of the intimation upon the rights of parties.

II.

TO BE STAMPED ON DEEDS.

Edinburgh, _____

Intimated to the _____

Society of this date.

(Sgd.) _____

NOTE.—In acknowledging intimation of this Deed, no opinion or admission is expressed as to its validity, or the legal effect of the intimation upon the rights of parties.

III.

MEDICAL CERTIFICATE OF DEATH

to be supplied by the Representatives of the late _____
 _____ to the _____
 _____ Society in connection with the claim under
 Polic No. _____

1. Did you attend the late _____ in the fatal illness? _____	1. _____ _____
2. Where did death take place? _____	2. _____ _____
3. What was the date of death? _____	3. _____ _____
4. What was the cause of death? _____	4. _____ _____
5. How long had symptoms of the last illness shown them- selves? _____	5. _____ _____
6. Did any disease precede, or co-exist with, that which was the immediate cause of death? If so, please to mention the nature and duration of it. _____	6. _____ _____

I hereby declare that I have answered the above Questions to the
 best of my knowledge and belief.

Signed at _____ this _____ day of _____

(Signature) _____

(Qualification) _____

When the Certificate is made by a person resident abroad, it should be signed in presence of, and the Signature attested *under Seal of Office* by the British Consul, or other local Official in whose presence such documents are usually completed. When death occurs at sea, a certified extract of the event from the Register of Shipping and Seamen should be sent with the Certificate.

IV.

The following Certificate should not be made by a person related to the deceased or in any way interested in the Policy, nor by the Medical Attendant, whose Certificate is required in another form.

CERTIFICATE OF IDENTITY required by the _____
 _____ SOCIETY, on the occasion of the Death of

Assured with the Society by Policy No. _____ on his Life,
 dated _____ 1 _____

I, _____ of _____
 _____, Do hereby certify that I was personally
 acquainted with the late _____
 for a period of _____ years prior to his death, which event, to
 the best of my knowledge and belief, took place at _____
 on or about the _____ day of _____ 19____,
 that I am satisfied as to his identity with the person above
 described, and that, so far as I had means and opportunity of
 judging, he must, at the date of his death, have been about the
 age of _____ years.

Signed by me at _____
 this _____ day of _____ 19 _____

(Signature), _____

Note.—When the Certificate is made by a person not resident in the United Kingdom, it should be signed in presence of, and the Signature attested *under seal of office* by the British Consul, or other local Official in whose presence such documents are usually completed. When death occurs at sea, a certified extract of the event from the Register of Shipping and Seamen should be sent with the Certificate.

V.

APPLICATION FOR PAYMENT of the Sums assured under
 Policy No. _____ on Life of _____
 due by survivance to the _____ day of _____ 19 _____

Address of the
Policyholder and
Date of Application {

To the Manager of the

 Society,

Edinburgh.

SIR,

The Sums Assured under the above mentioned Policy having become due to me by survivance, I enclose the Policy, and the various Deeds and Documents affecting the same as under noted, which form the Title thereto, and will thank you to send me the receipt for signature.

I am,

Your obedient Servant,

Signature
of the
Policyholder }

List of Deeds and Documents sent herewith, by which the Policy has been conveyed from or re-conveyed to the Policyholder.

(If no such Deeds or Documents have been executed, the fact should be stated here.)

The above Form of Application must be filled in by the Policyholder in his own handwriting.

VII.

MEMORANDUM regarding the application of a
Sum Assured to the payment of Estate-duty.

Policy No. _____ for £ _____ on the
Life of _____

If the above Policy is continued in force until the death of the assured, and has not been assigned or otherwise dealt with, the Society, on proof of death, will, at the request, in writing, of the persons or person who shall appear to an ordinary Court of Directors of the Society to be then entitled to call for and obtain probate of the will of the deceased or to obtain a grant of letters of administration or confirmation of his estate, and on their or his executing a discharge of the sum assured, or such other sum as may become payable under the Policy, pay to the Commissioners of Inland Revenue, or to the official or other authority or authorities for the time being competent to receive the same, such a sum, not exceeding the amount payable under the Policy, as shall be payable for estate-duty under the Finance Act, 1894, or any statutory alteration thereof, on the property passing on the death of the assured; and the balance, if any, of the said amount payable under the Policy to his executor or administrator when legally constituted.

By Order of the Court of Directors.

EDINBURGH, _____

VIII.

Extract from Probate of Will or Letters of Administration of
Assured under Polic No.

The Court from which the Probate or Administration was obtained.	
Description of the Document, whether Probate of a Will, or Letters of Administration without a Will, or Letters of Administration with the Will annexed, &c.	
Name and Description of the Testator or Intestate.	
The date of Death of the Testator or Intestate.	
To whom the Grant was made.	
The date of the Grant.	
Gross Value of Personal Estate within the United Kingdom, per Affidavit.	£
Estate Duty at £ per cent. paid per receipt on Affidavit.	£
Here add <i>a copy</i> of any special memorandum which may appear on the Grant; such for instance as " <i>A. B.</i> having renounced the execution of the Will," or "power reserved of making the like grant to <i>C. D.</i> ," &c.	

I certify that I have this day examined the Probate (or Letters of Administration) above described, and that the foregoing particulars are correctly extracted therefrom.

Date _____ 19____

Secretary in

X.

PAYMENTS TO TRUSTEES IN ENGLAND AND IRELAND.

POLIC No. _____

The Society have been advised that where Policy-moneys are payable to Trustees they must be paid in one or other of the following modes:—

- I. By Cash paid to *all* the Trustees, who must *all* be personally present at the time.
- II. By Cash paid by the Society into a Bank to the Trustees' joint account.
- III. By Cheque drawn to the order of *all* the Trustees (naming them), crossed generally and marked "not negotiable."
- IV. By Cheque drawn to the order of a Banker or Solicitor, who shall present, as agent for the Trustees, the Receipt for the sums assured, signed by *all* the Trustees.

Accordingly when the accompanying discharge is being executed by *all* the Trustees they should at same time complete *and all sign* the subjoined Form of Instructions as to the mode of settlement required by them, and cause the Discharge and Instructions to be presented together to the Society for payment.

If settlement is required under Head III., the Name, Occupation, and Address of the person to whom the Cheque is to be sent or given should be inserted in the following Form.

Form of Instructions as to Settlement under Head III.

With reference to _____ claim against the Society under the above Polic _____ hereby give notice that _____ shall be prepared to take payment on the _____ day of _____ and have to request that it be made by _____

_____ } *Here insert
Name,
Occupation,
and
Address.*

All the Trustees to sign here {
Date _____ 19 _____

NOTE.—To secure prompt settlement, this Form should be completed and forwarded with the Discharge to the Office of the Society in _____ not less than two days before that on which payment is desired.

FIRE LOSS ARBITRATIONS.

By JOHN CUNNINGHAM.

A Paper read before the Insurance Institute of Bristol.

My paper to-night is on "Fire Loss Arbitrations," and I can assure you that I approach the subject with a considerable amount of hesitation, for I feel pretty sure that to you, Sir, and to the senior members present I can say nothing that you do not already know; but I sincerely hope that to the younger members the paper may be helpful. You must please bear with me if it prove rather dry. I am frequently told, as I daresay most of you have also been told, that Fire Insurance Companies are ever ready enough to accept premiums, but that when a loss arises they are even more ready to raise difficulties in the way of a settlement. Of course, every Company is ready and anxious to increase its premium income, and some of them are ever devising new methods of bringing this about; but I need hardly tell you, what you all already know, that every Insurance Company of any standing is just as anxious to meet its legitimate liabilities as it is to accept premiums. But, gentlemen, all claims are not legitimate, and many claims which are legitimate are by no means reasonable. Happily, a large proportion of fire claims are fairly moderate, and these can be adjusted with ordinary care. Quite a number are, however, exaggerated; and to bring these to a satisfactory issue a good deal of experience and the exercise of some tact is necessary. In others, again, difficult questions arise as to what the policy does cover, and what it was meant to cover, and concessions have frequently to be made if the good name of the Office is to be maintained. Then there are honest differences of opinion as to the extent of the loss and the spirit in which the claim should be met. Many of these difficulties can be overcome by concessions or conciliation; but when all has been

done that a reasonable claimant can expect, and a good deal more besides, there remains a percentage, fortunately a small one, of claims that must be dealt with in another way, and every Insurance Company, in anticipation of such possible complications or differences of opinion, provides a remedy by inserting in its policy conditions an Arbitration Clause.

The wording of this condition varies considerably, some Offices being content to rest satisfied with the following short clause:—

“ All differences arising out of this policy shall be referred to the decision of an arbitrator to be appointed in writing by the parties in difference; or, if they cannot agree upon a single arbitrator, to the decision of two arbitrators, one to be appointed in writing by each of the parties; or, in case of disagreement, of an umpire, to be appointed by the arbitrators in writing before entering upon the reference. And the obtaining of an award thereon shall be a condition precedent to any liability of the Company in respect to any claim.”

As a rule, however, the conditions as to reference are much more explicit, and it has been the general tendency of late years to amplify such conditions. Here is the wording of one of the most recent, which you will notice provides for almost every contingency:—

“ If and whenever any difference shall arise between this Company and the Insured, or any Claimant under this Policy, as to the amount, or adjustment, of any Loss or Damage by Fire, or as to the amount of any other claim or demand upon the Company in respect of, or incidental to, or connected with, this Insurance, or arising thereout, the amount (if any) to be paid by this Company shall, whether the right to recover on the Policy be disputed on the ground of fraud or any other ground or not, and independently of all other questions, be submitted to the arbitration of some one person to be chosen by both parties, or failing the choice of such one person, to two indifferent persons, one to be chosen by the party claiming and the other by this Company, and in case either party shall neglect or refuse to appoint an Arbitrator within 28 days after notice in writing, the Arbitrator appointed by the other party shall act as sole Arbitrator, and in case the Arbitrators (if more than one) shall differ, the matters in difference shall be submitted to the arbitration of an Umpire to be chosen by the Arbitrators before entering on the reference. Each party to

pay his or their own costs of the reference and a moiety of the costs of the Award and of the Arbitrators and Umpire, and the Award of the Arbitrators or Umpire, as the case may be, shall be conclusive evidence of the amount of the Loss, or Damage, and of any other such Claim or Demand as aforesaid, and this condition shall be deemed and taken to be an agreement to refer as aforesaid, and may be made a Rule of His Majesty's High Court of Justice, or of any Division thereof, and it is hereby declared to be an express condition of this Policy and part of the Contract between the Company and the Insured that the party insured or other Claimant shall not be entitled to commence, or maintain, any action on this Policy, or in respect of any act, or thing, connected therewith, or arising thereout, unless and until the amount of the Loss or Damage, Claim or Demand shall have been referred and determined as hereinbefore provided, and then only for the sum so conditionally awarded, and the obtaining of such Award shall be a condition precedent to the commencement of any action or other proceeding upon this Policy or in respect of any such Claim or Demand."

The last of these conditions, you will notice, stipulates that each party to the reference shall pay his own costs and half the costs of the award. In most policies discretion as to costs is left to the umpire, who will, of course, be guided by the circumstances of the case; but several Offices have a similar condition to the one I have just read.

Now, against this clause a great outcry has been made by some members of the legal profession, who have not hesitated to stigmatise the condition as an unfair and unreasonable one. I have no hesitation in saying that this condition has proved of immense value in preventing men of no means from indulging in the luxury of vexatious arbitration at the expense of the Offices, and I cannot recall a single instance where it has pressed unduly on an honest claimant.

We may, I think, divide claimants who elect to go to arbitration into three classes—first: the honest, but obstinate, claimant who cannot or will not see the fairness of the position taken up by the Office; second: the claimant who gives notice of arbitration without due consideration of what it entails; and third: the dishonest claimant, who thinks that his insuring Office will pay through the nose rather than incur the expense, anxiety, and

odium of a reference, or who alternately hopes that in the glorious uncertainty of such a tribunal he may by sheer audacity secure fortune's smile.

In the first class we often find the man who cannot or will not see that, in arriving at a settlement of a claim on, say, a dilapidated building, the condition of such building immediately previous to the fire must be taken into account; or it may be a case where he wishes to abandon a lot of machinery or plant which is capable of being put into a condition equal to that existing previous to the outbreak; or it may be a farmer who kicks against the assessor's value of his remaining produce for average purposes, or perhaps he has an overheated hay mow. Please note I do not mean to suggest that every farmer who goes to reference on a heated hay mow believes in the justice of his case; for my experience tells me that in the majority of instances the farmer knows he is wrong, or at least has a strong suspicion that such is the case.

Now, with regard to the second class, I daresay many of you have noticed how frequently an unreasonable or impatient claimant will, if the least hitch occurs, give notice of arbitration, without any real intention of referring the matter in dispute to that tribunal, but simply with a view to force the hands of the assessor. Again, it is surprising how little knowledge of fire insurance matters (other than the 15 per cent. on renewals) is possessed by some members of the legal profession, whose only method of expediting a settlement is a threat to issue a writ. Both the claimant who, so to speak, plays with the Arbitration Clause, and the inexperienced lawyer who substitutes the nomination of an arbitrator for the issue of a writ, find themselves launched into the tide of arbitration before they know where they are. It frequently happens that a reference begun in such a slipshod manner hangs fire, and the assessor can then, by the exercise of a little diplomacy, bring about an amicable adjustment without troubling the arbitrators.

The third class of claimants are, I need hardly say, the most troublesome, though even some of these will climb down at the last minute rather than run the risk of facing a tribunal whose judgment they have all along professed their anxiety to obtain.

If the matter in dispute is not complicated, a friendly

reference to a single arbitrator can sometimes be arranged, and there are many cases where a "one-man" reference is decidedly to be recommended. As a rule, such a procedure is more expeditious and less expensive than a formal arbitration, and in a number of instances that have come under my notice the results have been satisfactory. I may mention, however, that in most of these cases the suggestion as to a friendly reference emanated from the assessor, and the individuals selected were of known experience and probity who had the confidence of both parties. Where the claimant is unreasonable, and the offer made by the assessor is a fair one, it not unfrequently happens that a suggestion to refer the claim to a man in the same line of business as the claimant, rather than have any dissatisfaction, has the effect of bringing the assured to a reasonable frame of mind, and the case is satisfactorily settled without further delay.

You have doubtless noticed that I used the words "friendly reference." By that I mean an informal reference, dispensing with lawyers on either side and dealing with the claim in as simple and friendly a manner as possible. Of course, it sometimes happens that a very formal reference is made to a sole arbitrator; but such cases are not very numerous. Arbitration may, as you know, be avoided by an election to reinstate; but as a general rule Offices are not fond of reinstating, except under exceptional circumstances, and a hostile reinstatement is a most anxious, and to some extent perilous, undertaking. But let us suppose that no proposal to reinstate has been made and that neither concession nor argument can bring about a friendly adjustment. Then there is no course open but arbitration, and the Office, however liberal, however conciliatory, must take up and maintain a firm stand. The assured generally makes the first move, which is to nominate his arbitrator. This must be done in writing, and it is not sufficient for him to write saying that he wishes the matter to go to arbitration, or even "I hereby give you notice that the matter must go to arbitration." He must give in writing the name of his nominee.

The choice by parties of the arbitrator is perfectly free and unhampered by restrictions. Some legal writers have even gone so far as to maintain that that not only infants (*i.e.*, legal infants) and married women, but even idiots and lunatics can

be arbitrators, on the argument that every person is at liberty to choose whom he likes best for his private judge, and he cannot afterwards object to the deficiencies of those whom he himself has selected. One man is said to have nominated himself; but on appeal to the Court by the other side he was not allowed to act, I presume on the ground that he was not a disinterested party.

It will not do for either side to nominate anyone who is notoriously hostile, or anyone who has an interest in the decision, *i.e.*, a pecuniary interest, nor, strictly speaking, anyone who has already expressed an opinion on the matter. An arbitrator should be absolutely impartial, and is always supposed to be so; but it frequently happens that he regards himself as the champion of his nominator, and so takes a prejudiced view of the facts. The selection of an arbitrator is of the utmost importance, as so much depends on his ability, clear-headedness, uprightness, and general aptitude for the work of the particular enquiry coming before him; and, where each side nominates an arbitrator, the side securing the most able man undoubtedly has the best chance of success.

The claimant having nominated, it becomes the duty of the Insurance Company to do likewise, and the time for doing this is limited. Where the policy condition refers specifically to this in its Arbitration Clause (and a number of Companies have taken this precaution) the time allowed is either 28 days or one calendar month from the date of the first nomination; but, if no time has been mentioned in the conditions, then the rules of the Arbitration Act, 1889, govern the procedure in England, and that allows only seven clear days in which to nominate. If this is overlooked, the party who nominated in the usual way may appoint his *own* arbitrator to act as sole arbitrator in the reference.

The Insurance Company always gives formal notice of nomination. One of the forms most commonly used runs thus:—

“ In the matter of claim by John Brown upon a policy of insurance dated the 24th day of December, 1905, and numbered 12345678, effected in the Bristol and Bath Insurance Company, Differences having arisen between the Insured and the Bristol and Bath Insurance Company in respect of the said claim, the said Company hereby appoint Thomas Adams, of

No. 999 Corn Street, Bristol, Arbitrator, pursuant to the 10th Condition of the above-mentioned Policy.”

This notice is signed by an official of the Company in the presence of a witness, and after the seal of the Company has been affixed it is forwarded to the claimant or his representative.

Both sides having now duly appointed their arbitrators, it is necessary that an umpire should be agreed upon, and the arbitrators meet and endeavour to select a person who can command the confidence of both sides. This, I need hardly say, is often a very difficult matter, and name after name is suggested by one or other, only to be refused. It frequently happens that in the end each has proposed a suitable and reliable man, but neither will give way, and the final selection is left to the arbitrament of fate, the names being written on separate pieces of paper and drawn for. I may mention here that where the arbitrators fail to agree upon an umpire, one or other of them makes application to the Court, and both sides are heard by the judge, who then nominates an umpire, and not infrequently selects someone quite independent of the wishes of either party. It is a risky proceeding, this going to the Court for an umpire.

The selection of an umpire is of even more importance than that of an arbitrator, and it is most necessary that a list of the most eligible persons should be prepared and their suitability fully considered before making any selection. In many instances a barrister or a lawyer who has been trained to judicial investigation is most able to estimate the evidence properly and to confine the examination strictly to the points in question. Such a man is likely, in making the award, to avoid such informalities as might afterwards set it aside. But there are very many cases where it would be obviously advantageous to secure for umpire a person having a technical or practical knowledge of a particular trade; or a good accountant; or an all-round level-headed business man. The legal mind, you must remember, does not always view a thing from a commonsense standpoint. The exigencies of each case will suggest the kind of person most likely to arrive at a fair decision, but, in any case, the umpire should be a strong man who has the courage of his convictions. Should the selected person decline to act as umpire, a new appointment has to be

made, and if a proposed arbitrator declined to act, a fresh nomination would, of course, have to be made before the selection of an umpire. Any party to an arbitration may revoke his nomination of arbitrator before the preliminary arrangements are completed, and such revocation is effectual until the umpire has been appointed. When a duly appointed arbitrator or umpire dies or becomes incapacitated, it is necessary to nominate afresh; and if a party or parties refuse or neglect to appoint after seven days' notice, the aggrieved party may move a judge to make the requisite appointment.

Previous to 1833 any person who had made a submission to arbitration could revoke his appointment and peremptorily put an end to or stay proceedings at any time before the award has been made. This power was, as you may suppose, much abused. If the case seemed to be going in favour of one party, the other party promptly revoked, for the sole purpose of evading the consequences of the award; but an Act of Parliament put an end to this anomaly. A revocation may still be obtained by applying to a judge of the High Court; but it must be shown that the arbitrators or umpire are incapable of undertaking the reference, or that there is a prejudice or partiality, and even then a revocation will not be granted until the other side has been heard. It has more than once been decided that the bankruptcy of a party to an arbitration makes no difference; but, if a claimant became bankrupt after the appointment of arbitrators but before the finding of an award, it would be well to wait until some agreement as to procedure should have been made with the Official Receiver or the bankrupt's assignee.

It will rarely happen in fire insurance cases that the claimant will desire any other question than the amount of the loss to be referred; and, in the majority of cases where the amount of loss is the subject of dispute, when that has been ascertained by arbitration the assured ceases to have any motive for commencing an action. On other questions a Court of Law seems the more fitting tribunal, though under most conditions "any difference" is to be referred, and some conditions provide for reference even where fraud is imputed. A few Offices, on the other hand, except from the reference cases where fraud is alleged by the Company, and such Offices would, I presume, when once they had raised the question of fraud, compel the

claimant to sue them in a Court of Law. If the Office succeeded in proving fraud, the assured would be debarred from recovering the amount of his loss, while if it failed to do this, such failure would not necessarily mean that the assured was entitled to recover the full amount of his claim. The extent of the loss would still have to be arrived at.

Except in the case of Offices who exclude fraud from their arbitration condition, an award by the arbitrator or umpire as to the amount of loss is made a condition precedent to any action at law; and, except in the case of Offices where fraud is specially excluded, the arbitration condition is sufficiently comprehensive to allow the question of fraud to be raised. At any rate, there seems nothing to prevent it, and it need not be a bar to a plea of fraud afterwards. If the plea be on the grounds of an excessive claim, it may be justified by the award; for instance, suppose a merchant claimed £1,000 for goods destroyed, well knowing that he had nothing like that quantity on the premises when the fire took place, and the arbitrators found that the value of the goods destroyed was only £500, there would be, so far as I can see, nothing to prevent the Offices resisting payment on the ground that the claim as put forward was so excessive as to be fraudulent.

Where the assessor is satisfied that a claim is fraudulent, and if he contemplate raising the question of fraud at the hearing, he must be careful to refrain from making any offer to settle, lest he should lay himself open to the charge of trying to compound a felony. Of course, it might happen that an offer had been made before fraud was discovered; but I hardly think this would be a bar to the plea being raised later on. Again, it is possible that where *bona fide* attempts had been made to settle, but without success, and the claim went to arbitration, an unexpected fraud might be discovered in the course of the hearing and the point successfully raised. And here let me just say how very necessary it is to avoid being drawn into any admission that might limit the scope of the reference. I remember a very bad case where, apart altogether from the suspicious circumstances of the outbreak, the quantities of stock claimed for had been so grossly overstated that little difficulty would have been found in proving fraud; but the solicitors for the Company fell into a trap artfully set for them by the other side and unthinkingly replied in the affirmative to

the remark made by the claimant's solicitors, which was "We presume the enquiry is one as to amount only." You can imagine the chagrin of the counsel and the assessor when a copy of this letter was sprung upon them at their conference on the night preceding the hearing. In the course of the investigation before the umpire the fraud was exposed; but the point could not be raised because the solicitors acting for the Company had clearly limited the enquiry to the question of amount, and as a result the claimant recovered a large sum.

But now let us get back to the arbitration proceedings. The place and time of sitting are arranged so as to suit the convenience of parties, and the proceedings before the umpire are regulated according to the peculiar circumstances of the case submitted; but generally it is advisable to conduct them according to the forms observed in Courts of Law, and they usually are so conducted. On the sitting of the Court, each arbitrator hands the umpire his appointment, so that he may see that these are in order. The claimant or his representative then proceeds to give an outline of the case, and he produces the policy itself under which the claim is made. This document is then "put in," as it is called. During the hearing it generally happens that books, invoices, letters, and other documents are "put in" by either side. This means that the book or invoice, or whatever it is, is handed over to the umpire and put into his custody until such time as the award has been made. For convenience in reference he marks each book or document with a letter or number.

In all important cases the claimant is legally represented, and as a rule it is well that the Insurance Company should also have their interests protected by a lawyer. Of course, there are numerous instances where the assessor can and does take the whole responsibility on his shoulders, but he is liable at any time to be nonplussed on some point of law. If one of the parties intends being represented at the enquiry by either a solicitor or a barrister, it is usual to give notice to the other side of such intention.

After the facts of the case have been outlined, the assured proceeds to give his evidence in support of his claim; but before he does this he must be sworn, as in any ordinary court. I may mention here that any person who wilfully and corruptly gives false evidence before the referee is guilty of perjury, and

may be prosecuted and punished accordingly. Every witness is open to cross-examination by the other side, and if the claim is one containing much detail the claimant may have a pretty tough time of it. It is not at all unusual for the claimant to be in the box for two or three days, more especially if the claim be a bad one.

An umpire or arbitrator must not say, "I decline to hear witnesses or lawyers. I'm not going to trouble about points of law. I shall investigate the matter myself and decide according to my own judgment." Arbitrators have been known to do such things, and then have been surprised when the loser has applied to a Court of Law to have the award set aside. All the same, an umpire has a good deal of latitude, and he can greatly condense or spin out the hearing. If he is anxious to shorten the enquiry, he will very likely say, "I think you need not call any more witnesses on that point," or "I think we had better not go into the correspondence that has taken place between the parties"; but I do not remember a case in which he has refused to do so if requested by either side. I have heard of cases where the desire of the Court seemed to be to make the enquiry last as long as decency would permit; but such instances are by no means common.

The umpire and arbitrators generally take full notes of the evidence tendered, and this is most necessary. It often happens that a witness under cross-examination will contradict himself, or deny having said such and such a thing in his examination-in-chief, and a reference to the umpire's notes is the only satisfactory way of clearing the matter up.

The evidence of the claimant is followed by that of any other witnesses he may choose to bring forward in support of his claim, and evidence on behalf of the Company is given by the assessor and any witnesses whom it is thought necessary to bring in support of the Company's views. Perhaps some of you will ask, what is the sort of evidence that the Office requires in support of its contention? Well, everything depends on the nature of the claim. In one case it may be necessary to testify as to the purchase, sale, or removal of plant, machinery, or goods—or as to quantities and condition. In another, evidence as to the age of plant and machinery may be wanted, supplemented by practical opinion as to the life of such plant and machinery, and the customary or reasonable percentage to

allow each year for depreciation. Again, it might be necessary to have expert evidence as to the value of materials, the cost of production of certain articles, or the cubic space that a given quantity of stock would occupy. In certain cases witnesses who could testify as to the traces found in the debris would be invaluable. In claims for agricultural produce, practical witnesses who could speak as to the probable yield per acre, the market and consuming prices, the custom of the district, and the condition of the farm would be most helpful. In any case, long before the date of hearing, the statements of witnesses would be taken down and compared, and, what is sometimes even more necessary, thoroughly sifted.

In cases where the contents of a factory, warehouse, or shop are the subject of the claim, the bulk of the evidence would or ought to be obtained from the books pertaining to the business, and from invoices; and, should there have been a stocktaking within a year or two of the fire, that would probably be the foundation on which the claim was based. In such a case the battle would in all probability be fought on the documentary evidence, though it might be necessary to supplement this by expert witnesses.

The onus of proof as to quantities and values of anything claimed for rests upon the claimant, who has to make good his case. If, however, fraud is raised, or the claim is resisted on the ground that the fire originated from spontaneous combustion, the onus of proving the fraud or the overheating rests upon the Office. In many cases it is advisable that the Court (*i.e.*, the umpire and arbitrators) should inspect the premises where the fire took place, and this is generally done by arrangement either prior to or during the course of the sitting. The hearing can, if necessary, be adjourned from day to day, or to suit the convenience of parties.

After the evidence has been tendered, the solicitor on each side addresses the Court, and then the arbitrators proceed to consider the matter. Of course, if they can agree on an award, there is no need to consult the umpire, who, technically, is supposed not to intermeddle until the arbitrators have intimated to him that they cannot agree. If these gentlemen realise that there is no likelihood of their agreeing, they as a rule at once inform the umpire, who arranges to hear their respective views at once or to fix a meeting for the purpose at

an early date. No one other than the umpire and arbitrators is allowed to be present at such meeting. The evidence is duly weighed and considered, the arbitrators state their views, and it is not at all unusual for the umpire to adjourn the sitting so as to give the arbitrators ample opportunity of putting their views in writing, together with their respective estimates of the amount of loss. The umpire takes time to further consider the matter, and when he has made up his mind he proceeds to put his award in writing. This should state clearly the sum which is payable by the Office to the claimant, and if the umpire be a wise man he gives no reasons for arriving at the decision. In cases where he has jurisdiction as to costs, he will also say how and by whom the costs are to be paid. The award must be made within three months after entering upon the reference. The arbitrators may, however, extend the time by mutual agreement in writing; but this must be done before the expiry of the three months. If no such extension has been made and the award is not ready at the end of that period, application must be made to the Court for extension. A verbal award is perfectly valid, but an award is rarely made in this form, and it is usually in writing with a suitable award stamp imprinted upon it.

In most conditions, provision has been made for the award to be made a rule of court, so that it may be adopted by a Court of Law as its judgment on the matter submitted. When the umpire has made his award he does not straightway make its terms known, but he writes the solicitor to the claimant, and also the solicitor to the Company, intimating that his award is ready and that it will be forwarded to either party on payment of the costs of the reference, the amount of which costs he states. These costs comprise the umpire's fee, the fees of the arbitrators, the travelling and hotel expenses of these three gentlemen, hire of room where sitting has been held, and any out-of-pockets incurred for viewing premises, cost of stamps, stationery, and such like.

When the award has been made the umpire's duty is finished. He may on reflection think he has given a wrong decision, but he cannot recall it on that account. If, however, a clerical error has been made in an award, the umpire can call it back and alter it, and an unintentional mistake can be corrected; but he must not revise his judgment nor alter the substance of it, otherwise there would be no finality. On

points of law an umpire is open to correction by the Court. Should a point of law arise during the hearing, he ought either to adjourn the case until parties have taken the decision of the Court upon the law, or else he must make his award, leaving the point in question to the decision of the Court. If he decide a point of law himself, he may be asked to state a case, which means he should put in writing what the point of law is and how he decided it. The aggrieved party can then bring the matter before the Judges of the High Court, who decide, and either affirm or reverse the award. If the umpire refuse to state a case he can be compelled by a mandamus from the Court to do so, provided the Court is convinced that a *bona fide* point has been raised.

In a case where the umpire had made his award, it was discovered that the policy-holder had assigned his claim to his own arbitrator. The Office applied to the Court and had the award set aside, on the ground that it was absurd for an arbitrator to pretend to arbitrate when he was to put in his own pocket the amount awarded.

There is nothing in the conditions of the policy nor in the subsequent submission to arbitration which compels either the claimant or the Insurance Company to take up the award, and in some rare instances the award has never been taken up. This, however, is hardly fair to the umpire and arbitrators, besides which it is somewhat risky.

It sometimes happens that a disappointed party to the reference, smarting under defeat, talks wildly about upsetting the award by appealing to the High Court. This is generally mere froth.

An award may be set aside on the ground of corruption and fraud on the part of the umpire or arbitrators, or for any material irregularity appearing on the face of the proceedings; but the tendency of the Courts is to favour arbitrations and maintain awards, unless such serious grounds as those I have just referred to can be substantiated. No appeal on the merits of the dispute can be submitted to any public tribunal.

In my opinion the arbitration condition is of immense advantage to the community in preventing litigation and providing a way out of difficulties when both sides have reached a point beyond which neither party will give way. Though the conclusions arrived at are sometimes unexpected and apparently wrong, yet, taken altogether, the decisions are very fair and honest.

BUILDING CONSTRUCTION AS AFFECTING FIRE RISKS.

By WINDSOR THORP, Fire Loss Assessor, Leeds.

*A Paper read before the Insurance Institute of Yorkshire,
2nd February, 1894.*

THE constant and increasing recurrence in our midst of alarming conflagrations, often causing immense destruction of property, occasionally serious loss of life, frequently bringing in its wake a considerable amount of distress by throwing out of work a more or less number of employees, and at all times producing very great inconvenience, may render it useful this evening to spend a short period in the consideration—first, so far as possible, of preventing loss by fire; and secondly, when fires do occur, of confining the loss within as narrow a limit as possible.

We may fairly start with the axiom, that so long as buildings are constructed of inflammable materials, exposed in the case of an outbreak to the action of fire, and whilst it is necessary to store in such structures, combustible and very often highly inflammable goods, so long also shall we be subject to the havoc and loss attendant upon this withering and destructive element.

In these days of advanced civilisation, we cannot fail to note that the legislature is quickly advancing to the point when it will insist in the future that our people shall spend their lives in the midst of more healthy surroundings, in buildings properly constructed, well ventilated, and entirely free from *sanitary* defects.

Is it too much to hope that the time is not far distant when it may go a step further, and by a system of municipal or other authoritative inspection, refuse to sanction the erection or occupation of any building, which under carefully thought out

and properly framed bye-laws, has not been reasonably constructed of such materials, and in such a manner, as to withstand the outbreak and prevent the spread of fire.

But if this is to be accomplished, it will have to be done by educating the people to the advisability, if not the necessity, of the object in view, and the advantages to be gained by such a course. It will also be largely helped by the quiet but persistent and determined agitation on the part of those who have large interests at stake.

In these days of so aptly called "ruinous competition," which apparently the Fire Offices are affected by in common with other professions and trades, when cheapness—resulting often in scamped work—appears to be the order of the day, there may be a tendency to accept business at low premiums and for large amounts, without sufficient regard, perhaps, in some cases, to the full consideration of the risk involved by the construction of the buildings in question, and the probabilities of the amount of loss in the eventuality of an outbreak by fire occurring.

The fact is so apparent, that it needs no argument whatever to prove, that too low rates of fire insurance tend to encourage the erection of flimsy and unsubstantial buildings, which, in its turn, cannot fail to bring about increasingly heavy losses to the fire offices concerned, by an accession of outbreaks and a wider area of destruction when fires take place. Supposing the owners of property were compelled to take their own risk and to bear the losses, it stands to reason that it would be to their advantage to make their buildings as nearly fireproof as possible. But so long as a cheap and flimsy building, aided by a low premium against loss by fire, will answer their purpose as well and produce nearly as much rent as one more substantially constructed and costing more money, it must follow, until the law steps in to prevent, that buildings of this nature will be put up, and which will bring in the most profitable return.

By combined action the companies have to some extent the remedy in their own hands, if by a corresponding reduction in rates every encouragement is offered by them to those who will adopt all reasonable precautions in the erection of new buildings to prevent fire and to minimise the extent of the outbreak—if one takes place—whilst heavy if not prohibitive

premiums would at once discourage the construction of buildings of an opposite nature.

So far as we are aware of, up to the present, legislature has done little in its enactments with the object we have in view; but there is little doubt, with the wide and important influence which the Fire Offices now command, it only requires persevering and united effort to bring about a well-considered and useful scheme of reform in this direction.

The Metropolitan Building Acts of recent years contain some very valuable provisions not only as to protection from fire but also in prevention of its spread, which, had there been time, we might very usefully have considered this evening. Yet they go very little further than to establish the principle that no building shall be erected which in case of fire may become a source of danger to the adjoining property, and on this principle have their provisions been framed. Whilst fully recognising the wisdom of this principle, we would go much further and urge that no building should be constructed which may become also a source of danger to its occupants, or whereby a probability of serious loss personally or to others may ensue, excepting and unless every necessary precaution is taken on fixed lines to provide against it, which can be accomplished at a reasonable cost.

No doubt there is an increasing demand emanating not only from municipal and other governing authorities, but also from the insurance companies, and to some extent from the general public, that buildings should be constructed of less inflammable materials, and be so planned or arranged as to offer a reasonable restriction to the spread of fire, in case of an outbreak occurring.

It will be our object therefore, this evening, to endeavour to point out some of the many imperfections in the planning and construction of buildings which are now common, and to suggest means not only for confining an outbreak of fire within narrow limits, but to prevent it originating by any improper construction of the building itself.

With the view of accomplishing our purpose, we make use of the term "to render our building fireproof"; but surely, in reality, is not this next to impracticable?

To find any abstract material, or a combination of materials, really proof against fire is well-nigh impossible. And for this

reason, that very few of them are proof against heat, and probably none of them in reality are absolutely proof against fire.

In the construction of a building so that it will resist the effects of heat and flame for any considerable length of time (and this is about all which can be done), great care and forethought are necessary in the choice of the position, a sound knowledge of all the materials to be used, and a skilful design to bring these materials into combination in such a manner as to meet the proposed requirements of the structure when completed.

At the same time it is important to avoid the certain consequences of exposure to extreme and rapid changes of temperature, as we well know that often the most havoc and devastation, during a conflagration, has not been due to the primary—viz., the devouring—effect of the element, but to the secondary effects of expansion produced by heat, followed by sudden contraction.

There are two methods at present adopted of rendering buildings so-called fireproof. The one is in construction, and the other by protection.

The object of the *first* is to form the walls, floors, ceilings, roofs, partitions, staircases, etc., of unflammable materials; take for example stone, brick, terra cotta, iron or steel, cement concrete, plaster, tiles, slates, etc.; and this is the more costly course.

The object of the *second* method is to protect such parts of the building as for the sake of economy are constructed of inflammable material like wood, with a covering of plaster or cement, and a judicious application, where advisable, of silicate cotton (slag wool) or asbestos to prevent ignition. There are also various solutions with which wood may be treated or painted, which, it is said, tend to render it less inflammable, if not proof against ignition altogether. But most of these we treat with a certain amount of suspicion and distrust, as many of them are not reliable.

If we take the first of these methods, in order to confine the limits of an outbreak within as narrow a compass as possible, the object of the architect and builder should be to adopt precisely the same principle as you would do to a vessel divided up into watertight compartments; and to so divide and sub-

divide the building both vertically and horizontally into sections, that each would be fireproof within itself. To entirely accomplish this, the vertical outer walls, the inner divisional walls and partitions, and the horizontal floors, ceilings, and roof covering ought to be constructed of such materials and in such a manner as to render it next to impossible that the stability of any part of the structure can be endangered by an outbreak of fire amongst the contents (fierce though it may be) in any one of the sections, or that the fire can by any reasonable probability spread to any of the other sections.

Some ingenuity and care, you will see, is necessary in the planning or designing of such a building, to provide that not only are all the openings in the inner walls, partitions, floors, ceilings, and roofs so arranged, and protected so far as is practicable with fire-resisting and, if possible, automatic closing doors or flaps, but that no window or door opening in an outer wall would be likely, by overlooking or being adjacent to such an opening in another section, to prove the means of communication by which the fire could be spread.

The first or constructive principle is, as we have stated, a costly one, provided even the simplest and least expensive method, at present known for the purpose, be adopted.

We should say it is applicable, therefore, to buildings in which the contents are very combustible or inflammable; or in cases where the nature of manufacture and occupations carried on therein involve great risk of fire, and consequent heavy rates of insurance. We think it should be applied to most large factories and warehouses, and to every building, whatever its character may be, which is let off in different tenements. We would also apply it to every shop where part of the building is occupied as a dwelling-house: so that the one be perfectly isolated from the other. Many of these are nothing but traps to the inmates in case of fire, and often involve very serious loss of life, or bodily injury in endeavouring to escape. To instance shop premises of this class, I know of a large emporium where a great number of men and women assistants live on the spot, occupying the top rooms in the building, and fronting the main street. It is planned like many of the Parisian houses, with a large central "magasin" open to the roof, and galleries on each

floor for the sale of goods. Supposing a serious outbreak of fire was to take place at night in this shop—full of the most inflammable goods, and the building composed as it is of combustible materials as dry as tinder—so remote, tortuous, and narrow are the passages, staircases, and approaches to the bedrooms, that unless warned in good time and before the fire had made any headway, the position of the inmates is a dismal one to contemplate. Unless alterations and improvements have been made recently, their chance of escape would be indeed a hopeless one, except by fire-escapes or long ladders, provided they arrived in time. Yet this is one instance only of very many, we fear, similar cases of faulty and absolutely reckless planning of such buildings in reference to the special risk and danger from fire.

Prudence alone, one would suppose, should render the *constructive* system applicable to all costly buildings in themselves, whether of a public or private character, and to all structures where valuable commodities find a home or are stored.

For ordinary dwelling-houses, and buildings generally of a cheaper class in which the risk of fire is not so great, the second or *protective* method, if systematically adopted and properly carried out, would probably answer all reasonable purposes, and prove eminently serviceable in protection from and preventing the spread of fire.

It may now be as well to devote our attention to some of the various means which have been used, and, after years of study endorsed by practical experience, are now being used towards the elucidation of the best method of construction for rendering our buildings as far as possible proof against the destructive ravages of fire.

Closely allied with this is the question as to what are the most suitable constituent materials to be used for the purpose, whether by themselves or in combination with others.

Nearly all varieties of stone are bad, as it will calcine to dust under the influence of great heat, or it will split and fly to pieces on the application of water when at a more or less heat.

Cast iron will expand if exposed to fire, and it becomes brittle and apt to snap with the rapid contraction when water is suddenly directed on to it.

Wrought iron and steel are also liable to great expansion

and contraction under the effects of fire and water, and often become warped and contorted into the most fantastic shapes. This expansion and contraction of wrought iron and steel, entirely owing to the metal being unprotected by an efficient non-conductor of heat, have, in many fierce outbreaks of fire, been the means of utterly wrecking a building by forcing out or drawing in the walls, frequently causing an entire collapse, whereas the walls might have been largely or entirely saved if the pillars had been formed of solid upright barks of timber, and the horizontal beams carrying the floors of solid wood, or in two thicknesses of timber, with a wrought-iron fitch plate between, and all bolted together.

Cement concrete is of little use unless composed of an aggregate of suitable material.

Wood, when dry, we all know is highly inflammable; but if used solid, and of sufficient thickness, particularly if it be protected with plaster or well-coated with lime-wash, it will take longer to consume than many people imagine, even under the influence of a fierce heat. Many illustrations might be given of the wonderful resistance of timber to heat when properly protected. We have seen beams of both oak and red Baltic timber practically untouched by fire when the heat has been sufficient to twist wrought iron and to melt brass in close vicinity. In many old buildings the ends and sides of timbers have been built into the flues, and for scores of years, in some cases centuries, have successfully withstood the heat and flame, this being entirely due to the lining of the inside of the flue (and timbers) with a thick coat of elastic mortar. Immediately the latter has crumbled away with age and friction, when favourable conditions have ensued, ignition of the timber at once takes place. We have even come across chimney stacks to thatched-roof cottages, probably two centuries or more old, made entirely of oak skeleton framing, covered with reeds or rushes both inside and out, and then enveloped with a thick coat of coarse lime mortar, containing hair, short bits of straw, and probably cow dung to give it elasticity. These have also resisted the heat, until either the timber or mortar have succumbed to age.

Tiles as a covering are preferable to slates, as the latter will crack and crumble under the combined effects of great heat and water.

There can be no doubt whatever that by far the most suitable materials for fireproof building purposes—particularly the shell of the structure—are those which in the process of manufacture have been subjected to great heat, or in other words thoroughly calcined.

First and foremost of these are ordinary bricks made of good moist well-tempered clay, free from all stones—particularly limestone—well worked up in a pug mill, and after being cut or pressed into shape, burned until they are hard in a properly-constructed kiln.

Brickwork is certainly almost the only reliable fireproof building material; and many instances might be quoted where, when solidly and properly built, it has successfully withstood the destructive element without being materially injured. It has been graphically described by an eye-witness of the great Fire of London, that one of the most remarkable circumstances of that fearful event was in the fact, of the few brick buildings which then existed, they were the only ones to withstand the raging fire when it reached them. In our vivid remembrance at a more recent period, and nearer home, we can call to mind the fierce fire which raged for many hours under the brick arches carrying the Midland and London and North-Western and North-Eastern Joint Railway Stations in this city. The brickwork stood the test in a remarkably successful manner. Certainly one or two of the arches collapsed, thereby weakening some of the others; but this was due to the springers or butments of such arches being of stone, which split and crumbled with the heat and water.

Then we have bricks made from fireclay, for which Leeds manufacturers have obtained a world-wide celebrity; and there are the Staffordshire blue bricks, almost vitrified and capable of standing the most intense heat.

Closely allied to these, and where ornament and detailed design are important desiderata, we have terra cotta, which can be moulded and cast into any shape, and is capable of the finest modelling of the potter's art. You have a good illustration of its adaptation in place of chiselled, moulded, and carved stone, in the chaste and artistic front to the building designed by Alfred Waterhouse, Esq., R.A., of London, and erected for the Prudential Assurance Company in Park Row, Leeds. The terra cotta there introduced is of a buff colour, and was

manufactured at the Burmantofts Works of the Leeds Fireclay Company, Limited.

Another splendid specimen of this work many of us may have seen in the richly ornamental fronts, full of the most delicate and intricate yet harmonious treatment in its details, of the Victoria Law Courts at Birmingham, designed by Messrs. Aston Webb & Ingress Bell, architects.

In this instance the terra cotta used is of a rich deep red, and if we mistake not was made at the works of Mr. J. C. Edwards, of Ruabon.

The terra cotta is constructed in moulds with hollow interstices to economise the clay, and after being burned in a kiln until it becomes vitrified, it is filled in solid with cement concrete.

Stone, as we have previously stated, is an unsuitable material for fireproof construction; but in many places it is to be obtained readily at hand, and in any quantity; whereas bricks are scarce and dear. In other cases, for solidity of appearance and architectural effect, chiselled stone will continue to be preferred. The damage done to the stone, in case of a severe outbreak of fire, would be greatly lessened if the front casing of stone was backed up by not less than 9-in. thickness of brickwork, or Portland cement concrete of proper constituent parts, properly tied or bonded together; or, better still, with a cavity of 3 inches between the two, and connected together by solid continuous courses of hollow or perforated special-made bricks 12 inches long at irregular intervals, to obtain the necessary bond. Perforated stone ventilating grids in sufficient numbers to obtain a good current of air, should be placed in line near the base, and again approaching the summit of the outer stone facing.

We should thus obtain not only a stronger wall than a solid one, but with these further advantages. The cavity would prevent any damp striking through to the interior of the building, and it would also tend to keep the rooms cool in summer and warm in winter.

Built in such a manner as we have described, if a raging fire took place within a building, the current of air passing upwards within the cavity would tend to keep the inner wall of brick cool, and would entirely prevent the heat from getting to the outer casing of stone; and the damage to the latter would

probably be entirely confined to the immediate surroundings of the window and outer door openings, through which the flames unfortunately cannot well be prevented from finding an outlet, whilst the inner wall, being of brick, would be little if any the worse.

Cement concrete, as a fireproof material, has advanced greatly in public favour of late years; and as we believe it is destined and qualified to withstand the ravages of time and the severe tests of fire, its capabilities and utilisation will be still further developed in the future. But it requires careful and thoughtful manipulation, and in the selection, proportions and incorporation of its constituent parts.

It is quite certain that to constitute fire-resisting properties the aggregate should be composed of calcined materials, such as broken bricks, clinkers, furnace slag, or coke breeze, mixed in either case with a due proportion of good tested Portland cement. If broken stone, pebbles, or gravel are used as an aggregate in place of the calcined materials named, such cement concrete, however good and strong it may have proved for other purposes, has a tendency to fly completely to pieces and collapse under the combined influence of great heat and water.

It would be impossible within the compass of a paper like this, limited in time to the short period of little over an hour, to enter into all the varieties of treatment which may be commended for attaining a good fireproof construction. In fact, it goes without saying, that what is suitable for one building may not be for another—so much depends upon the adaptability of the structure for the purposes to which it is intended to be used.

But there are certain general principles which may be laid down, and which perhaps are applicable to all; keeping in view the object we are desirous to attain.

By far the heaviest losses due to fire in this district, it must be admitted, occur in the various buildings used for manufacturing purposes. We will therefore take as a simple illustration that of a factory several storeys in height, intended to be let either in tenements on the various floors, or to be occupied by one firm for manufacturing purposes, the nature of which calls for no *special* consideration in the plan or construction of the building to safeguard it from risk of fire. We will also assume that the site for the building is a simple

rectangular oblong, and the surrounding land is vacant; leaving us free and unfettered by the consideration of any outside circumstances of the environs to plan and erect our building to the best advantage.

The boilers, in a self-contained building, of brick, covered by a light iron trussed and slated roof, with ample ventilation, might advantageously be placed at one end. The engine-room, adjoining but not communicating, would come next, with a fireproof roof or covering similar to that we shall afterwards describe for the factory. If it be intended to take the first power from the engine to the different storeys of the factory by rope or strap races, it would be advisable, for the prevention of the spread of fire, that they should be separated from the building of the factory proper by surrounding brick walls, with light iron-grated floors, approached by step ladders of the same material, to facilitate any necessary repairs and lubrication of the bearings. Our reason in advising this course is obvious; for has not unfortunate but practical experience taught us frequently that nothing, perhaps, tends more rapidly to spread fire than the rope and belt race openings in the floors of such a building. The eyelet holes in the wall dividing this compartment from the rooms of the various storeys of the factory, for the bearings of the main driving shafts, should be contracted in size to the smallest limits compatible with the necessities of the case, and sufficient to admit of proper lubrication.

We now come to the main building of the factory proper. The outer walls may be of brick of sufficient thickness and strength to bear the probable weight they are likely to have to carry. To lessen the cost and gain great additional strength to such walls it is not unusual to thickness them between the window openings and at the ends by the introduction of piers from two or three feet wide. This can be done both inside and outside the building if requisite; but the outer piers, acting as buttresses, add the most strength.

Over the window and door openings in these walls, both inside and out, brick arches should be turned. Or should it be desired to have rectangular openings, the heads may be formed of iron or steel light-rolled joists embedded in concrete, cast in a box or mould, and finished to a quartz or fine even surface like stone with pure Portland cement. The

lintels over these openings to the inside of the building, and to all openings in the internal walls where not arched, may be similarly formed, with or without the quartz finish.

The window sills may be also constructed of concrete, but without the rolled joists; or they may be of terra cotta, moulded or made to any shape desired.

The sills or thresholds at the feet of the doorways can be of hard stone, or, better still, of concrete as last described.

The internal walls sub-dividing each of the storeys into rooms will naturally be of brick, and should be thoroughly well tied or bonded into the outer walls, not only in the construction of the brickwork itself, but with the aid of strong hoop iron built into the joints and twisted and turned along both walls.

We now come to a consideration of the floors; and this is a subject in fireproof construction to which we have no hesitation in saying more thought and study have been directed than to any other.

Before the properties and value of cement concrete were fully understood, we find that brick arched floors, carried by cast or wrought iron girders, supported on brick pillars or cast-iron columns were generally adopted; and there are numerous instances of these still existing in warehouses, mills, sugar refineries, and other buildings where great weights are put upon the floors. The iron girders may be placed from four to twelve feet apart, the arches turned from one to the other, the spandrels filled in and levelled up with concrete, upon which the intended finished floor would be laid. Wrought-iron tension or tie rods are required in all cases of arching of this nature, to unite the girders, and to prevent the arches from spreading and consequent collapse. The rise of such arches should be one-tenth the span, or increased to one-eighth if very heavy weights are intended to be placed upon the floor. There are several serious objections to the use of these arches for such a purpose. They take up a great deal of room in the height of the building, owing to the depth of the arching. They are costly, complicated, and heavy, requiring great strength in the outer walls and inner columns or piers. Again, the arches depend upon one another to a great extent, and if one gives way the whole of the others may follow. In this old form of fireproof flooring the supporting columns—if not of brick—are

generally of cast iron, entirely unprotected, as are also the bottom flanges of the girders. These are apt to snap and give way suddenly, when subjected to fire and water. Should one of the upper floors thus give way its enormous falling weight would probably cause the collapse of those underneath, and perhaps of the whole building. To avoid such a risk to the girders the lower flanges may be entirely imbedded in fireclay skewback blocks, made for the purpose in from 9-inch to 12-inch lengths, and providing a minimum thickness of not less than $1\frac{1}{2}$ inch of fireclay underneath the flange which has been found to resist the fiercest heat to which such a structure is likely to be exposed.

The cast-iron columns may be imbedded in cement concrete, or protected by other means, which we will very shortly point out.

Another form of fireproof arched flooring is that introduced many years ago by Messrs. Dennett & Ingle, of Nottingham, and which has been very largely and successfully adopted over the country in many large and important buildings, amongst which may be mentioned the National Gallery, Law Courts, and St. Thomas's Hospital in London; the Victoria Law Courts in Birmingham; the Town Hall and Owen's College in Manchester; and Manningham Mills, near Bradford. It has also in several notable cases successfully resisted the spread of serious conflagrations, and prevented the extension of fire either upwards or downwards from the storey of the buildings in which it originated.

The floors consist of cement concrete arches supported where they abut upon the walls by projecting brick courses, and at intermediate spaces by iron or steel rolled joists or rivetted girders resting on piers or iron columns as before described. The arches have a minimum rise of an inch to every foot of span, and have been safely constructed up to sixteen feet span. As in brickwork, they are sustained by wood centering, lagging, and props until they are thoroughly set. The speciality of their concrete is in the use of sulphate of lime (gypsum) or plaster of Paris for its matrix. The gypsum is burnt at a very high temperature, and to this is probably the fact due that the plaster of Paris cement used will not crumble after it is set under the combined action of fire and water. The composition of the concrete is as follows:—1 part of the gypsum cement to

3 parts of screened broken brick, slag, or clinkers to pass through the 2-inch mesh of a sieve, thoroughly incorporated together, and mixed with a sufficient quantity of water.

The floor above the arch may be formed by simply bringing the concrete itself to a level and smooth surface, or it may be finished in whatever material is desired.

The advantages Messrs. Dennett & Ingle claim for their system are as follows:—1st. It is stronger than brick arching for the same cost; or, in other words, much cheaper for the same strength. 2nd. It is homogeneous, occupies less depth of floor space, thus economising the height of the building, and being very much lighter than brick it effects a very considerable further saving in the weight and cost of the iron girders and columns and in the thickness of the brick walls and piers. They also claim equal advantages to the flat horizontal methods of more recent adoption; one or two, and the more important perhaps, of which, we now propose to draw attention to. But before leaving this system it is as well to say that they put the cost of their arching, including the centering but exclusive of ironwork, at from £3 10s. to £5 per square, according to the locality and strength required.

With the ironwork it would vary from £6 to £7 10s. per square. We may also mention that these floors have not only successfully stood the severe test of heavy dead weights, but also of very massive falling weights; and without material damage as a consequence.

Of late years the horizontal and flat system of fireproof flooring has been very largely developed, and will, we believe, continue to be so; for it has many and manifest advantages. It gives no thrust on the outer walls like arched floors, but ties the walls securely together, and provided the iron or steel joists and girders be thoroughly encased, neither expansion by heat nor sudden contraction by water can take place. It takes up much less depth than arching—in fact, little if any more than ordinary timbered flooring—and thus secures greater height of the rooms, or less height of the building. Being flat both on the floor and ceiling surfaces, it offers facilities for more readily finishing the work on these surfaces, and at a much less cost. It also forms a construction of the strongest description, the tensional strains of the weight put upon it being taken by the iron or steel, and the compressive strains by the concrete.

Almost innumerable methods of this form of flooring have been introduced and proposed from time to time, both in England and France. Time will only admit of our referring to two of them, both of which commend themselves as being thoroughly effective in every respect, and capable of being executed at little if any more cost than wood, taking into consideration strength for strength.

The first is the system comparatively recently adopted by Messrs. Homan & Rodgers, of London and Manchester, who for many years have closely studied the best means of rendering building work fireproof, and put the results of their researches into practical operation. It is composed of rolled iron or steel joists, varying in depth according to the span, and placed about two feet apart. The intermediate spaces are filled in crosswise with bevelled both sides and purpose-made hollow fireclay bricks. These bricks are so constructed as to cover the bottom flanges of the rolled joists, and, besides being provided with wedged and dovetailed joints, they are grooved on the underside in such a manner as to form an unfailing key for the ceiling plaster.

The vee interstices between these bricks, and the space above the bricks and between the joists, is then filled in with cement concrete finished an inch to an inch and a half above the level of the top flanges of the joists, thus completely imbedding them. The concrete can be formed in the proportions by measure of six of ground furnace slag or clean coke breeze to one of the best tested Portland cement, and, if necessary, finished on the floor level with a smooth and fine quartz surface. The depth of the finished floor according to span is 6 inches to 9 inches only, and the cost, exclusive of the finished face, is given at about £4 per square. Thus it takes up less, if anything, in depth than an ordinary timbered floor, and does not exceed in cost one of corresponding strength. These floors are practically noiseless, the different densities of the concrete brick and plaster, and the air space in the hollow bricks, intercepting altogether the vibrations of sound. Neither water, acids, nor alkalies will affect them injuriously, and they have the advantage of requiring no flat boarded centering or temporary support during the process of construction, which effects a considerable saving in cost on that head, over the more general methods adopted in putting in

these flat floors. These floors have been very largely used since their introduction in many important buildings both in the Metropolis and elsewhere; and in many instances have been tested most effectually in severe outbreaks of fire. Perhaps the most notable recent instance was in the partial destruction of Messrs. Judd's printing premises in London during April, 1893, when a floor on this system successfully withstood the fire and the fall upon it of the *debris* of four upper floors, roof, ironwork, and printing presses, weighing several hundred tons, and piled up to a height of about thirty feet.

Another and perhaps a simpler form of horizontal and flat fireproof flooring is that largely adopted by Messrs. Alfred Waterhouse & Son, architects, of London, and others. It consists of rolled iron or steel joists placed from one foot nine inches to five feet apart, varying in depth of section and weight according to the span and the load to be carried. Temporary flat boarded centering and supports are placed about two inches below the level of the bottom flange of the joists. For the distance of an inch above, and the intermediate spaces between the joists, are then filled in with coke breeze and cement concrete, mixed in the same proportion as before described, on the top of the centering, taking care to press the concrete firmly in and pack it solid under the bottom flanges of the joists, which thus again become completely imbedded and protected from the action of fire and water. The wood centering and supports must not be removed until the breeze concrete is thoroughly set and hard, which may be the case in from four to five days, but prudence would delay it for a fortnight or even longer. We observe that this system is little different to that last described. It dispenses with the hollow fireclay bricks, which are replaced by concrete, but it necessitates the temporary wood centering. We may safely, therefore, place the relative cost of the two at about a similar amount.

The great advantage of coke breeze concrete is its light weight, much lighter, we believe, than any other form of cement concrete made, and it is capable of being nailed and screwed into like wood, and will offer a similar resistance to the nails or screws being drawn out of it.

In both the cases of arched floors mentioned, the soffits, or underside of the arches, may be finished with a setting coat of

plaster or cement, or simply with two coats of limewash, to form the finished ceiling; but if a flat ceiling is desired, wood joists will be necessary, fixed to the lower flanges of the girders, to carry the wood, lath, and plaster; or, instead of the wood joists and laths, expanded metal or wire lathing, suspended by light iron rods about an inch below the girders, may be substituted to carry the plaster, thus dispensing with all combustible materials. Where the horizontal and flat system is adopted, the underside of the grooved bricks, or concrete respectively may receive a plaster or cement smooth finishing coat for the ceiling.

We now come to the encasement of the cast-iron columns. This may be accomplished by forming a rough wood cylinder in halves, and built up in sections round the outside of the column, but leaving a clear space of not less than two inches between it and the column. Then fill in this intervening space with fine breeze concrete, removing the wood jacket or cylinder when it is set. A variety of other means may also be adopted to secure the same object.

It cannot be too strongly urged that unless the cast or wrought iron columns supporting the floors or any other vital part of a building are properly encased by a good non-conductor of heat, they cannot be relied upon to stand the effects of a severe conflagration, and if they give way, down come the floors above, and probably most of the building follows.

We have already mentioned that the flat upper surface of all these concrete fireproof floors is suitable for a finish of any description. The simplest would be to float it perfectly level and smooth with pure Portland cement, or mixed with a small proportion of fine crushed granite or furnace slag. If a wood floor be desired, the least objectionable from a fire risk point of view would be to adopt ordinary red deal or oak blocks, about 9 inches long by 3 inches wide, and $1\frac{1}{2}$ to 2 inches thick, laid to a herring-bone or simple pattern, in a mastic solution, used hot, on the top of the cement concrete, afterwards brushing dry Portland cement into the joints between the blocks, until they become entirely filled in.

If this form of wood floor is thought undesirable and too costly, light wood fillets or sleepers, about 15 inches apart, may be nailed on to the top of the breeze concrete, and floor

boards laid on these in the ordinary way. But in the latter case, we need hardly say that owing to the air space between the boards and the concrete, the wood will add fuel to the fire in case of an outbreak. On the other hand, if the wood be laid as first described, experience has taught us it may become carbonised on the top surface, but it will not burst into flame. Wood is warmer to the feet, more noiseless when laid on the solid, and less slippery than cement, and this makes it more generally preferred, except in basements, or in rooms where there is much moisture or steam.

Trap doors in floors should be studiously avoided, unless they are absolutely necessary. They are very often dangerous in themselves, and frequently are a factor in the rapid spread of fire from storey to storey.

In these enlightened days, when hoists or elevators have come so generally into use and appreciation, there are few cases where such traps in floors are needed.

But the hoist in itself may be even a source of greater risk in the spread of fire than any number of trap doors, for, in case of a fire breaking out in any of the lower storeys, unless it be thoroughly isolated, it is almost certain to act as a huge flue, into which the flames are drawn until it becomes like the cupola of a raging furnace, spreading destruction on each floor as the flame rises upwards, and then to the roof if it is of a combustible nature. Instead of constructing two, or, as is often the case, three sides of the hoist enclosure of timber and boarded framing, we would suggest they should all be of brick, from the base of the building to the summit, and the doors to gain access to the cage should certainly be of reliable fire-resisting construction.

The next important item for our consideration is the staircase. It should be in a central position, unless the building be so large as to render two advisable, in which case they might be placed at each end. For a factory, where such a plan is attainable, it is better not to bring them within the square of the main building, but to build out an oblong pavilion or wing, placing the conveniences on each floor at the end of it. Between these and the outer wall of the main building the staircase should be placed, with square and roomy landings at each floor level, and half or quarter pace landings at intermediate spaces between each. These and the steps

should all be constructed of cement concrete, finished to a smooth quartz surface, and built firmly into the walls. Steps diminishing in width, technically designated winders, should be scrupulously avoided, as they are the fruitful cause of many serious accidents, and are very dangerous in case of panic.

The openings through the side wall on to the staircase should be provided with doors opening outwards, of fireproof construction, and closing automatically.

By placing the staircase in such a position as named, and constructing it in the manner suggested, it would be next to impossible that the staircase itself would suffer material injury in case of fire, or that it would act as a flue in spreading it.

As one floor would, in construction, be a repetition of another, we will next consider the roof, which is, as a rule, one of the weakest points in the apparently studied art of combustible architecture.

Naturally, in considering this part of the structure, the first question presenting itself to our minds is—What is a roof for? The answer is just as obvious—To keep out the wet. But should it not also be for keeping out the heat of a blazing summer's sun, and equally to keep in the warmth during the keen frosts of winter? It cannot be denied, even from a utilitarian point of view, that a very large percentage of modern roofs are essentially bad, and many of them have not the one redeeming feature of presenting a pleasing picture to the eye. They convert the upper storey into an oven in summer and a refrigerator in winter, and by the liveliest efforts of ingenuity could not be better adapted for proving a ready and short-lived prey to the devouring element of fire. Those amongst us who have been called upon to inspect buildings after outbreaks of fire will be able readily to call to mind numbers of instances where, in roofs of the cock-loft description, in the hollow spaces between the slates and the ceiling, the flames have rapidly spread, both out of ready reach of water, and even of observation.

For buildings of the nature of factories, large warehouses, etc., flat roofs have many excellent qualities to recommend them—constructed in every respect similarly to the floors described, of concrete and iron or steel joists, but with this addition, that the upper surface of the concrete be covered with two coats, forming an inch thickness, of Val de Travers, Seyssel, or other suitable mineral rock asphalte. This

material, if genuine, is not affected by great variations of temperature, and as the necessary gutters, cesspools, fillets, skirtings, etc., are readily formed and laid in it, its elasticity and durability render it an absolutely reliable watertight covering. These asphaltés are made from a bituminous limestone rock found on the borders of and in the north-west of Switzerland, containing about 90 per cent. of carbonate of lime, and 10 per cent. of bitumen. Some, perhaps, may exclaim that surely this cannot be fireproof, as bitumen in itself is very inflammable. It has, however, been clearly demonstrated that when in a state of mastic, or, in other words, in the combination stated above, it is not only entirely incombustible, but, as Professor Attfield, F.R.S., has proved, that it will put out flame better than water.

This statement is completely vindicated by a thorough test made some years ago in Manchester with Val de Travers asphalté, and which took place before representatives of thirteen of the principal Fire Offices and the Superintendent of the Fire Brigade there, which proved conclusively that it underwent no change, nor was it affected by fire or water under the most trying conditions it could be subjected to.

But we fancy we hear some architects exclaiming, "These flat roofs would limit the scope of our artistic designing power." Perhaps it might, but, on the other hand, may it not also provide another channel for the exercise of their professional aptitude and skill. A bold and more or less ornamental moulded cornice, surmounted by a neat and well-conceived parapet wall or balustrade and coping, may be made both artistic and pleasing to the eye.

A flat roof of this description would certainly cost no more, and probably less, than one of the many forms of timber and slate construction so generally used.

If top light is necessary, it can be readily adopted in such roofs, but the limits of a paper like this will not admit of our going into descriptive detail. We might, however, mention that we know of no more effective system for roof lights than the various forms now so often adopted of patent glazing composed of light steel bars and cast or rolled plate glass, dispensing, as it does, with all the usual woodwork and concomitant leakage.

Should a roof of ordinary timber and slate construction be desired, in such a case the whole of the transverse or cross divisional walls should be carried up through the roof, and

not less than 1 foot 6 inches above the level of the slates, the tops of the walls being covered with hard stone, or, better still, terra cotta coping. If an outbreak of fire takes place in the roof, it will thus be confined to the one section between the brick divisional walls. The underside of the roof timbers should also be protected from the action of fire by suspended expanded metal or wire lathing coated with plaster or cement, or by other suitable protective methods.

We have thus got the shell of our building, and for a few moments only shall we be able to consider the external and the internal finishings.

Wood we must eschew as far as possible, owing to its combustible properties. Cast or wrought iron sashes, with opening casements, either hung on centres or hinged in various manners, filled in with armoured glazing, can be introduced in place of wood, and at little if any more cost for the windows.

The fireproof doors between the compartments or rooms, and to the openings on to the staircases and to the hoist shaft, may be of sheet-iron plates rivetted to a strongly-braced frame at the back; but to be effective and withstand fierce heat, the plates must not be less than $\frac{1}{4}$ -inch thick, and even then too great dependence cannot be placed in them, as they will frequently buckle and warp so as to become entirely useless. We have here specimens of construction for a door which we believe is almost impossible for a fire to destroy or render ineffectual in case of a conflagration. One is a modification of the other, and both are very simple, being composed of two thicknesses of ordinary red deal grooved and tongued floorboards, the grain of each piece being reversed or crossed. In one case a sheet of asbestos millboard is placed between the two thicknesses of wood; in the other the asbestos surrounds the exterior surfaces of the wood on both sides and edges. In both specimens the external surfaces are then covered and sealed airtight with thin tinned wrought-iron sheets, the whole being copper-rivetted together. In the case where the asbestos entirely covers the wood, the latter could suffer little, if any, injury by heat; whereas in the other case a fierce fire on one side might penetrate the iron and carbonise the one thickness of wood, but it would not get beyond the asbestos sheet; and the other thickness of wood, and the sheet-iron covering it, would remain unscathed. As no air could by any means get to the wood, it would not burst into flame.

Whether an iron door or one of this description, it should be hinged to a wrought-iron rebated frame, either built in or firmly bolted to the brickwork.

A door hung to a frame of this description proves more of a safeguard in preventing the spread of fire than a sliding door, and is much more readily opened and shut; but if the latter be adopted, it should run in a groove or channel in the floor, and overlap the brickwork when closed at least three inches at the top and on each side of the opening, and be fixed as close to the wall as practicable. The running rail, pulleys, and gearing should be of wrought iron, the former being fixed to a slight fall, to facilitate automatically the closing of the door. On no account should these be attached to any woodwork, but secured by wrought-iron bolts through the brick wall.

The practice of lining walls and ceilings with grooved and tongued boarding is greatly to be condemned. So also are wood stud and plastered or boarded partitions.

If a light partition is needed, it may be constructed of cast slabs of Portland cement and coke breeze concrete $2\frac{1}{2}$ to 3 inches thick, perpendicular wrought-iron rods $\frac{3}{4}$ -inch diameter and about 1 foot apart being passed through the centre of the slabs, firmly secured at foot to the floor and at the top to the ceiling to give the partition firmness and strength, afterwards floating it on both sides with ordinary lime plaster or, better still, with Robinson's cement.

It could also be made of light angle iron, covered both sides with the patent expanded metal lathing supplied by the British Metal Expansion Company, Limited, of West Hartlepool, from incised sheets of best thin steel, and then rendered with ordinary hair mortar or Robinson's cement. The key formed in this lathing for the plaster is perfect, the strands being at an angle of 45° to the plane of the sheet, and it is thus absolutely impossible for the plaster to leave the lath unless it be entirely pulverised.

In the *protective* system of fireproofing, this lathing may be placed round iron or wood beams and pillars, and plastered or cemented. It should also take the place of the riven wood laths usually fixed to the underside of wood floor and ceiling timbers, to form the plastered ceilings upon.

Ordinary lime plaster, if properly prepared and laid on, is not a bad fire-resisting material, but nowadays it is jere-mandered to such an extent as to make it generally unreliable. Break or bruise the outer skin, and it will run like sand in the

hour-glass. It will frequently crack, fissure, and crumble under the influence of great heat.

Of all the cements used for the finishing of ceilings and walls, that manufactured by Messrs. J. Robinson & Company, Limited, of Carlisle, cannot, we believe, be surpassed as a fire-resistant, and we are confirmed in our opinion by that of Sir E. M. Shaw, a former Superintendent of the Metropolitan Fire Brigade. It is made of gypsum, obtained from Inglewood Forest Quarries, near Carlisle, and has been subjected to a heat of 3900° F., without exhibiting any signs of fusion, expansion, contraction, or decrepitation. Only two coats are employed in place of three, as in ordinary lime-plastering. The first is composed of gypsum, known as their Paragon Fireproof Plaster, while the outer and last coating consists of their fireproof cement, which sets as hard and smooth as polished marble, and it is not unlike it in appearance. It sets, also, so very quickly that a moderate-sized room can be first-coated and completed within twenty-four hours, and its cost (taking into consideration the saving of time, labour, and space) is very little over that of ordinary good lime-plastering.

During the devastating conflagrations following the Commune in Paris, we were witness to the fact that many walls and even wood partitions and beams covered with a plaster of gypsum remained intact and uninjured.

Another more recent introduction is the "Adamant Plaster," manufactured by the Adamant Company, Limited, of Birmingham, and its fire-resisting qualities are said to be equal, if not superior, to those of any other plaster made. The Company do not appear anxious to divulge its exact constituent contents, but there is no question it is largely composed of sulphate of lime, a suspension of sawdust, and to which certain chemicals are added to assist its setting and hardening properties.

Like Robinson's Cement, it is applied in two coats to both walls and ceilings; it will not crack or give way under the influence of great heat, and its cost is about the same. It has been subjected to a most severe experimental fire test before Superintendent Tozer and several influential members of the Birmingham Corporation, which it successfully withstood, proving its valuable fireproof qualities beyond doubt.

If finished with their chromolith, it will polish like enamelled pottery, and quite as hard.

This Company has also patented a most ingenious method of rendering floors fireproof by means of concrete blocks with a corrugated under surface, laid in the intermediate spaces between rolled iron or steel joists placed about two feet apart; the corrugations being filled up and afterwards rendered with the Adamant Cement to form the finished surface of the ceiling, and thus encasing the joists. We have on the table a finished model of this system of flooring, which, including the ironwork, can be put down for about £4 5s. per square.

For buildings of a more costly and ornate character, the filling in elaboration and ornamentation is a mere matter of detail, which to a large extent can be successfully and artistically manipulated with little or no sacrifice to the principles laid down. Burmantofts or Doulton's faience pottery may be used as a covering to the ceiling, as tiling on the walls, for the outer encasement of brick pillars or iron columns, and even as panels for the wood framing, such as doors. For cleanliness, nothing can surpass it, and it should last for ever.

Marble of all descriptions, granite, artificial marbles, like Scagliola and Marezzo, may also be adopted as dados or casings to the walls, or simple cements such as we have described, or plaster ornamented at will.

For the finished surface of the floors, marbles, mosaic tiles, ornamental wood parquetry, or plain oak and deal boards, bedded solid in mastic on the top of the cement concrete.

Where wood is ordinarily used for moulded skirtings round rooms, for linings to windows and doorways, and for architrave moulds, etc., some good cement plaster like those described, and of fire-resisting properties, would take its place equally as well, and at little or no more cost.

The practice of using wood bricks, or plugs driven into the joints of brickwork to attach wood finishings to, should be dispensed with as far as practicable, and Wright's patent fixing blocks, or coke breeze bricks, built in as the work proceeds, should imperatively be substituted in their place.

Wood plugs often carelessly or inadvertently driven into or near a flue have been the cause of a very great number of serious conflagrations, involving immense destruction of property; take for example the disastrous fire some years ago at

the Earl of Harewood's residence in our immediate neighbourhood, and which came under our own observation.

We will now pass for a few moments only to the consideration of ordinary and the cheaper class of dwelling-house risks. With the exceptions made in the early part of this paper, the risk of fire is, comparatively speaking, so small that, in our opinion, the cost would scarcely be warranted in adopting a more or less expensive system of *constructive* fireproof work.

Let the various methods of *protective* means be appropriated as far as they are practicable, and likely to be useful and effective.

In our experience more than half the outbreaks of fire in dwelling-houses are due to defective building construction about the fireplaces or flues, or to careless and improper setting of the fire-grates and ranges. It should be rigidly enforced that all timbers, whether to floors, ceilings, or roofing, should be trimmed at least two inches clear of the chimney breasts and stacks; the trimming joist to the front of the hearth and parallel with the face of the breast being kept back not less than 1 foot 9 inches from such face.

In a party wall it is frequently the case that there may be no breast on the one side of it, nor anything to indicate the existence of flues; nevertheless, it may be honeycombed with them, particularly towards the summit, and they generally come within $4\frac{1}{2}$ inches of the outside of the wall. Where this happens, the timbers should be trimmed at least 2 inches clear of the wall, and the ends of the cross timbers should not enter the wall at a less distance than 9 inches from the flue.

The face of the wall behind which are the flues, for the full depth of the floor, should be rendered with a good coat of plaster or cement. No ceiling boarding or timbers should be allowed under any hearth unless they be protected by the presence between them and the hearth proper of a $4\frac{1}{2}$ inches or more thick brick trimmer arch, or solid breeze concrete slab of the same thickness; and even then metal lathing, to carry the plaster ceiling below, would be of safer construction, and no more costly than the wood.

The front and end walls of the chimney breasts would be better if 9 inches in place of $4\frac{1}{2}$ inches thickness between the outside and the flue. All skirtings and mouldings carried round chimney breasts or across walls where there are flues would be better in cement or plaster than in wood, which in such cases should be prohibited from being used.

Cupboards fixed in the recesses at the sides of fireplaces, particularly those in kitchens, if secured by nails to wooden plugs, which may easily be driven into the flues, are another element of risk.

As to the flues themselves, the general custom has been to render them inside with a thick stiff coat of plaster composed of lime and cow dung in the proportion of one of the former to three of the latter, technically called *pargetting*. This forms a tough, smooth, and yet elastic lining, and it is not so liable to crack with heat as ordinary hair mortar. But the latter is more readily at hand, and consequently it is now generally used. It is often also of the most inferior description, rendering it next to useless. Therefore, we strongly advocate the use of circular fireclay flue linings, with all necessary bends, built and flushed in perfectly solid with lime or cement grout. They should be 9 inches diameter for ordinary fireplaces, and 12 inches for special ones, like kitchens, etc., and they should not have a glazed or too smooth surface inside, or the soot is apt to slightly cake, and occasionally fall. They offer less resistance to the smoke, are free from the objectionable corners or ledges in brick flues, do not collect the soot, and have excellent fireproof qualities within themselves.

The introduction of slow-combustion grates of late years has been a source of largely increased risk of fire to dwelling-houses where timbers go under or in too close proximity to the fireplace or hearth. Particularly is this the case where tiled hearths are introduced. The radiation of the heat from the fireplace is such that the tiles will frequently get red hot, and if laid, as in many instances we have seen, on a thin covering of inferior cement concrete, supported by boarding on timbers, there is every probability that a catastrophe will happen sooner or later.

As we have previously stated, outbreaks of fire frequently proceed from the imperfect setting or fixing of grates. The openings formed in the brickwork for the grates are usually simple rectangular recesses with vertical sides and backs. When the grates are fixed, it is requisite that the interstices at the sides and back of the grate should be filled in solid with brickwork, fireclay bricks being preferable.

If this is not done, there is always a danger of burning soot or embers falling behind the back or ends of the grate, and lodging at the back of the wood skirting, or on the wood floor

beyond the hearth and chimney-piece, thus setting the wood-work on fire. Particularly is this essential now that wood mantel-pieces are increasing so largely in public favour.

In old buildings where beams and timbers often run under the hearths, and the labour and cost would be very great in removing them, no better plan could be adopted than wrapping them with about an inch thickness of mineral wool (usually called slag wool or silicate cotton) and up to the level of the underside of the hearth, whether of stone or tiles, filling in between and over the timbers with cement concrete. This would reduce the risk of fire to a minimum, if carefully and properly executed.

Mineral wool is made from furnace slag when in a molten state, when it is subjected to jets of steam and hot air, which blows it out into the fibrous state in which you see it here. Its capabilities as a protection against fire or heat are many and invaluable.

The same may be said of asbestos in its many forms, but perhaps particularly in the shape of millboard of best and unadulterated quality. It is a mineral substance, composed to a large extent of silicate of magnesia.

Wherever stoves are used, the floor underneath for a space of at least 18 inches all round, should be composed of materials of an incombustible and non-conductive nature, and must be of sufficient thickness to resist the heat. Each should also stand in an iron pan, with sides all round, raised at least 3 inches from the bottom. The smoke pipe should never (if it can be avoided) be carried through a timbered floor, ceiling, or roof, but be put direct into the nearest brick flue.

Pipes for heating arrangements, and conveying hot water or steam under pressure, should never be placed nearer than 3 inches to any combustible materials, and if hot air (conveyed in brick flues or sanitary or iron pipes) be adopted, no nearer than 9 inches.

We need not speak of the folly of fixing a gas-light immediately under and too near a wood soffit or ceiling, or placing a swivel bracket so that it will come in contact, when swung in certain directions, with woodwork or other inflammable materials; take for example muslin or lace window curtains. And yet this is perpetrated in numbers of instances.

We might dwell for some time on numerous solutions and coatings which have been applied for rendering wood uninflam-

mable, some of little use, others more so. Amongst these may be mentioned, tungstate of soda, cyanide, asbestos, and silicate paints, etc. One of the most effectual is that recommended by Professor Abel, C.B., F.R.S., in which he recommends the surface to be painted with alternate coats of silicate of soda and lime-wash.

But so far as we can ascertain, the best of them will not preserve the timber from destruction when subjected to a fierce heat. The most they apparently will accomplish is to prevent it from bursting into flame, and to ensure that it gradually, yet none the more surely, is reduced to charcoal and ashes. This, to say the least of it, is an advantage, as it prevents the wood from adding fuel and fury to the fire.

This paper has trespassed far too long, we fear, upon your time and patience, but the subject is an interesting and valuable one, and it might, we think, be pursued with advantage to an almost unlimited extent, considering the magnitude and importance of the interests involved.

We have endeavoured, within the compass of little over an hour, to bring before you a few simple thoughts, facts, and suggestions on fireproof construction and fire-prevention, so far as building risks are concerned, which we trust may have been of some interest to you: but, gentlemen, we may tax the utmost intelligence of our brains, we may build up an ingenious and formidable mountain of theory, based upon principles of practical knowledge and common sense, endorsed by the wisdom we have gained by experience; and a brick left out in a vital place, supplemented by an act of carelessness, or a pure and simple accident resulting in ignition, and—alas! for poor, frail human nature,—our fabric, framed after so much anxious care and thought, may fall to pieces under the devouring element, like a rope of sand.

The writer is greatly indebted to the following firms for valuable information, and in several cases for useful specimens of their work and materials, viz.:—Messrs. Dennett & Ingle; Homan & Rogers; J. Robinson & Co.; The Adamant Co., Ltd.; The British Metal Expansion Co., and others; and to various Works, including “Rivington’s Building Construction,” from which he has quoted.

ADDENDA, August 1908.

After the lapse of several years since this paper was written, it is pleasing to note the general advance which has taken place during the intervening period towards the attainment of many of the objects I had in view when penning it.

In many towns municipal legislation in particular has forged ahead in the framing of byelaws for the construction of buildings in such a manner as to minimise the risk and spread of fire; the Fire Offices Committee have recognised in their rules and regulations other suggestions in a modified or extended form; and the armoured wood doors have been taken up, manufactured and adopted as the best for fire resistance in the lateral openings between the compartments of a building.

Great developments have also ensued in fireproof building and towards the elimination as far as possible of all combustible material used in construction. Particularly is this the case in the quite modern introduction of reinforced concrete when applied in entirety to walls, piers, floors, beams, lintels, and roofing of a building throughout, on either the "Hennebique," "Kahn," or other systems. This alone would form a valuable subject for a paper to take up an entire evening.

WATER SUPPLIES AND PRESSURES.

By J. MASON GUTTRIDGE, Esq.

*A Paper read before the Insurance Institute of Manchester,
12th March 1908.*

THE history of water distribution demonstrates the fact that its conquest has been in all ages the unceasing object of mankind, and the principal cities and towns of the world, almost without exception, owe their inception to their proximity to springs or rivers.

Evidences of this are shown in the Bible, and the literature and monuments of Ancient Egypt and Greece attest to the immense endeavour of Kings and the earliest civilisations to provide a pure and copious supply of water to meet the requirements of their peoples.

Two thousand years ago the Roman Empire had, by means of gigantic undertakings, unparalleled by later generations, introduced a water supply into their capital, and several of their ancient water mains exist and still perform the functions for which they were originally constructed. These early aqueducts conveyed the water by gravitation, and it was not until the 16th century that "Elevating Machines" were installed.

The subject of water distribution had not been adequately treated in this country until a comparatively recent period, as will be seen from the following advertisement, taken from an old Liverpool newspaper:—

17th November, 1758.

At Edmund Parker's pump, on Shaw's Brow, may be had water at 9d. per Butt, for watering, shipping, or sugar houses, and is as soft for washing or boiling peas, etc., as any in the town. Any Merchant or Captain of a ship sending to his house next to Mr. Chaffers, China Pot House, may be served immediately by their humble servant,

EDMUND PARKER.

Water was carried about the streets for sale in the towns within living memory, and who has not heard of the village pump?

The growth of population had long demonstrated that the water supply was a question of vital importance to the community, but up to the commencement of the 19th century little progress had been made on the conditions existing two thousand years ago, when the method of distribution was by means of stone, clay, or lead pipes. The introduction, therefore, of cast-iron pipes in 1810 was undoubtedly one of the most potent factors in the development of Public Water Works Schemes, as it permitted the attainment of a higher pressure, and consequently of a better and more ample supply of water.

The aggregation of large populations in restricted areas had in so many instances rendered the existing water supplies inadequate, that about the middle of the last century, Engineers began to seriously contemplate the impounding of water by means of watersheds or gathering grounds, and of necessity to convey it large distances.

As this system of collection was not unlikely to ultimately prejudice the interests of the less populated areas, a movement was commenced with the object of nationalising the water supplies of the country. With this object in view an effort was made to approach the Government for the purpose of securing the adoption of some scheme for the appropriation of the remaining watersheds, and by so doing, provide a water supply that would be directed and controlled by the State for the benefit of the whole nation.

Our present King (then Prince of Wales) interested himself in the scheme, and wrote the following letter to the Chairman of the Council of the Society of Arts :—

3rd January, 1878.

Sir,—The supply of pure water to the population is at the present time exciting deep interest throughout the country. Our great cities and populous towns such as Manchester, Liverpool, Birmingham, and others, are each for itself taking steps to obtain an improved and increased supply, whilst the Metropolis is seeking further powers from the Legislature with the same object in view. The smaller towns and villages are dependent on accidental sources of supply, and in many cases these are wholly inadequate for health and comfort. While the larger populations are striving each independently, and at an enormous cost, to secure for themselves this article of prime necessity, the smaller localities must make the best shift they can, and in many cases are all but without any supply at all.

Under these circumstances, I would draw the attention of the Council to the subject, and suggest whether at the present time great public good would not arise from an open discussion of the question in the Society's Rooms, with a view to the consideration of how far the great national resources of the Kingdom might by some large and comprehensive scheme of a national character, adopted to the varying specialities and wants of districts, be turned to account for the benefit not merely of a few large centres of population, but for the advantage of the general body of the nation at large.

I have the honour to be, Sir,

Yours faithfully,

ALBERT EDWARD,

President of the Society of Arts.

A deputation on the subject was received by Lord Beaconsfield, and the question was afterwards very carefully considered, but the general conclusion arrived at was that local conditions and circumstances presented such considerable variations, that it appeared impossible to devise any comprehensive National Scheme of water supply.

That the matter raised by the Prince of Wales was worthy of the closest consideration, is attested by the following extract from the Report of the Select Committee on Fire Brigades, which met in 1900 :—

“Taking England alone, of 1025 Urban Districts (including County Boroughs and non-County Boroughs) there were 266 without Fire Brigades; also, out of a total of 1025 Urban Authorities, 116 are returned as being without sufficient Hydrants, and 119 as having a defective water supply.”

The primary object of a Water Works Engineer is to secure a source that will provide water in sufficient volume not only to supply the immediate domestic and commercial necessities of his district, but also to anticipate, so far as possible, the future requirements of the locality, and to make a liberal allowance for the same.

Generally, the sources of a water supply are :—

Watersheds or gathering grounds,
Rivers,
Wells and Springs.

A watershed or gathering ground may be described as a tract of land situate in high levels of mountainous districts, from which water drains into a convenient valley, is there impounded

by means of a dam, and so forms a reservoir or lake. Birmingham and several of the large towns, as well as some of the manufacturing centres of Lancashire and Yorkshire, secure their water supplies in this manner.

Manchester obtains its principal supply from Lake Thirlmere, in Cumberland, which stands about 533 feet above the sea level, whence it flows to Manchester in three culverts each 100 miles long.

The impounding reservoir, formed by "banking-up" the river Vyrnwy, in Wales, upon which Liverpool depends very largely for its water, is 825 feet above the sea, and the water is conveyed to that city by means of two culverts 67 miles in length.

Water is allowed to flow by means of gravity from the catchment areas into balancing reservoirs on the line of the aqueduct, which provide additional storage, until it finally reaches the service or distributing reservoirs, which regulate the supply and pressure and are common to most works for the supply of water, being generally situate near the localities to be supplied.

When water is not obtained from an impounding scheme, but is procured from a low-lying river or from wells, it must be forced into the service reservoir by means of pumps. Towns sometimes lie on such flat land that no site sufficiently elevated for a service reservoir is procurable, in such a case an artificially elevated reservoir, known as a water tower, is usually built at such a height that water may be delivered at a reasonable pressure to the highest parts within the district to be supplied, whilst in some cases, less frequent still, the water may be pumped directly into the mains.

When a locality is dependent upon power for its regular supply of water, it is manifestly desirable that the pumping machinery should automatically maintain an uniform pressure and regular flow in order to avoid damage to the mains by shocks, such as would be consequent upon sudden changes. Moreover, notwithstanding the exercise of the greatest care in the design and manufacture of the pumping apparatus, the possibility of a breakdown due, for instance, to wear and tear, is always present; this defect is, however, generally provided for by a duplication of the machinery.

SYSTEM OF DISTRIBUTION.

The advantages to be derived from the possession of an adequate source of water supply must necessarily be dependent, in

a large measure, on the efficiency of the system of distribution. The method almost universally adopted is by means of cast-iron pipes of varying diameters, which ramify through the streets in all directions, fireplugs being placed thereon at intervals, generally about 100 yards apart.

The water on its escape from the Service Reservoir, flows through large mains direct into the distribution system, for which purpose towns are generally divided into districts according to positions and levels.

The City of Manchester is supplied with water from several sources, the whole of the area served being divided into zones, graded according to their datum levels, in such a manner that the higher lying districts are fed from the higher reservoirs, and the lower neighbourhoods from those less elevated. This arrangement possesses two advantages, for not only does it reserve the higher pressure for the districts which need it, but also relieves the mains in the low-lying areas from the constant strain which would result from their connection with the high reservoirs.

The whole of the services are controlled by an arrangement of valves, consequently, when a call is received at the Fire Station, a water Inspector accompanies the Brigade to the scene of the outbreak, and knowing the valve system manipulates it in such a manner that the high-pressure services may be concentrated on any point necessary to cope with a fire. The main from Godley Reservoir, which feeds the high-lying districts, passes through the heart of the City, and in the event of fire, forms an important adjunct to the ordinary mains. In the warehouse area, such an arrangement as this (which in substance amounts to the fact that a high-pressure main, to some extent reserved for fire service, runs through the danger zone of Manchester) cannot be too highly valued, and the other great trade centres might with advantage be provided with similar services.

Probably the most effective method of distribution is that known as the "Gridiron" system, by which, as the name implies, the principal mains on leaving the reservoir branch away in contrary directions, and at suitable points feed large mains which are attached to them at right angles.

The third grade or service pipes intersect the larger mains at many points, thus linking together the whole system, with the result that the pipes have at least duplicate feeds, thereby practically eliminating the recurrence of "dead ends."

The Gridiron System, which ensures a continuity of supply notwithstanding a break on one of the mains, is very extensively used in the modern Waterworks of America, and although it is impossible to adopt it in its entirety in the existing waterwork schemes of this country, the advantages peculiar to the system have been recognised and modifications of the principle introduced into English distributing systems.

As the details of any system of distribution are considered, the fact becomes apparent that the determination of the pipe sizes and the question of pressure are interdependent.

It will be conceded that an adequate pressure should be such as would supply the highest storeys of premises in the most distant part of the district under consideration, and also command the roofs with fire streams from the hydrants without the intervention of a pump.

Pressure, in its application to water, may be thus classified :—

1. Hydro Statics, which deals with water at rest, or in equilibrium.
2. Hydro Kinetics, which relates to the science of liquids in motion.

By virtue of gravity, pressure in any body of water increases as we descend, and water being both inelastic and incompressible can only exert pressure when at rest by the momentum due to its own weight, it is therefore to this “gravity” pressure that my remarks will be confined, and will not be extended to force mechanically applied to water.

Again, owing to this incompressibility of water, its specific density is uniform, therefore in any column of water, no matter of what height, the weight of a given volume at the bottom is no greater than that of a similar volume at the middle or top. This uniformity of weight readily permits the measurement of the force exerted by water at rest, but in order to formulate an unit of pressure an unit of area must first be determined, the square inch being commonly adopted in this connection.

A cubic foot of water, *i.e.*, a body of water 12 inches square and 12 inches high, measures 6·23 imperial gallons, and weighs 62·4 lbs.; if, therefore, this weight be divided by the number of square inches covered by the base, it will be found that the weight is 0·43 lbs. per square inch for the foot of depth, we therefore say that the pressure exerted by 1 foot of water is 0·43 lbs. to the square inch. The term “feet head” means the height in feet of

a column of water above a given point, the word "head" being substituted for "height."

The pressure, therefore, exerted by any body of still water will be found by the multiplication of the constant 0.43 lbs. by the feet head available : for instance, 200 feet head would indicate a standing pressure of 86 lbs. on the gauge.

The square inch having been adopted as the unit of area, gauges are commonly constructed to indicate pressure on that basis ; consequently, a pressure shown on the gauge is merely indicative of the fact that certain feet head of water are exerting a force equal to the number of pounds shown over one square inch of area.

A similar static pressure reading would be obtained whether the column of water concerned be of 1in., 6in., or 60in. diameter.

As an example, we will consider two mains, each supplied from a practically unlimited source with 200 feet head. Let the first main be wholly made up of 6-inch bore, and the second of similar pipes with the exception of one length, the internal diameter of which is one inch only, the standing pressure of the water would be the same in each case ; if, however, a 2-inch valve were opened on each main, the pressure indicated by the gauges would differ most materially immediately the water began to flow.

It therefore follows that a high standing pressure on the gauge by no means ensures a good running pressure flow of water, to obtain which two other factors are indispensable.

1. Ample volume which is of paramount importance.
2. Adequate sizes of pipes to convey same.

Theoretical formulæ have already been made for calculating the necessary sizes of mains ; the generally recognised principle, when the pipe diameters are being determined, is to establish the approximate domestic requirement of a locality on a 24-hours basis, and then to lay piping of sufficient capacity to supply such needs, usually in eight or in some cases twelve hours.

A minimum standard has not yet been fixed for the small mains, but there is a general consensus of opinion amongst Engineers that even in outlying districts their diameter should not be less than six inches and four inches for trade and domestic purposes respectively. The formula generally accepted by practical Engineers for estimating the volume of water that would issue from pipes of given sizes at stated pressures is the following, by Thomas Box, in his "Practical Mechanics" :—

The discharge capacity of a short straight pipe—not less in length than twice its diameter—is obtained in gallons per minute by the square root of the foot head, × the diameter of the pipe in inches, squared, × 13.

$$(G = \sqrt{H} \times D^2 \times 13).$$

Friction ignored. All pressures taken as at point of discharge.

EFFLUX OF WATER

Under varying pressures from pipes of sizes named. All pressures taken as at point of discharge :—

Pressure in lbs. per square inch			Discharge per Sprinkler	SIZE OF PIPES.								Efficiency of Sprinkler at Nozzle 70 %
				Discharge per minute calculated by Box's formula %								
Pressure	Head	Square root of ft. Head		½"	1"	1½"	2"	3"	4"	5"	6"	
				Diameter squared in inches—								
				¼"	1"	2¼"	4"	9"	16"	25"	36"	
				Multiple—								
1	4	9	16	36	64	100	144					
5	11·5	3·39	7·769	11	44	99	176	396	704	1100	1584	
10	23	4·79	10·981	15·56	62	140	248	560	992	1556	2240	
20	46	6·78	15·53	22·03	88	198	352	792	1408	2203	3168	
25	58	7·61	17·356	24·73	99	218	396	872	1584	2473	3552	
35	80·5	8·97	20·471	29·15	117	262	468	1048	1872	2915	4192	
50	115	10·72	24·55	34·84	137	313	548	1252	2224	3483	5008	
60	138	11·75	26·89	38·18	153	343	612	1372	2448	3818	5488	
75	173	13·15	30·069	42·74	171	384	684	1536	2736	4274	6144	
80	184	13·56	31·05	44·07	176	397	704	1588	2816	4407	6352	
100	231	15·19	34·719	49·37	197	444	788	1776	3152	4937	7104	

Some French and American treatises on this subject state that the conveying capacity of pipes increases much more rapidly than the square of the diameter, a multiple adopted in the above calculations, and suggest the theory that the relative discharge of pipes increases as do the totals of the square root of the fifth power of given diameters.

Now the squares of the diameters of 1" 2" 3" 4" 5" 6"
are respectively 1" 4" 9" 16" 25" 36"
but the square root of the fifth
power of the same diameters
equal 1 5·6 15·5 32 55·9 88·2

It will be observed that the proportion of the discharge of 6-inch and 1-inch pipes by this latter theory is as 88 to 1, as against 36 to 1 according to Box.

Further, it may be noticed that water flows more sluggishly near the banks than in the centre of a stream, and this result is accentuated when water is completely enclosed as in piping, there being a degree of affinity with iron and water which to some extent clings to it, thus reducing the flow efficiency of even the smoothest pipe.

The existence of the retardent element known as skin friction is confirmed by the fact that the discharge from a given diameter of piping diminishes as the length of the piping is increased. To such an extent does this deterrent operate that Box gives an illustration where 1000 gallons per minute of water in passing through 170 yards of 8-inch piping loses a force equal to more than nine pounds to the square inch.

Again, this frictional surface offered to the flow of water is relatively much less in the larger pipes than in the smaller ones, as will be seen from the following computations.

The circumference of a circle being 3.1416 times its diameter, and the area of a pipe the diameter squared multiplied by .7854, we arrive at the following results :—

Diameter	1"	2"	3"	4"	5"	6"
Area	".785	3".141	7".068	12".56	19".63	28".27
Friction						
Surface	3".141	6".283	9".424	12".566	15".708	18".849

Box also gives the following losses as occurring in the foot head of water in the various sizes of pipes while passing 100 gallons per minute through pipes one yard in length :—

Diameter	1"	2"	3"	4"	5"	6"
Loss	41.1	1.28	.169	.0401	.01317	.005292

The comparison, therefore, of the two theoretical discharges, when considered in conjunction with the efflux formula, tends to demonstrate that the "square-diameter" theory does not overstate facts but gives results below the actual discharge, especially with pipes of considerable diameter.

There are tables which enable us to calculate the loss of "head" in pipes through change of direction or bends, and also the loss owing to friction in pipes, but the formulæ for the latter are based on the resistances offered by *clean smooth pipes*. Hence the estimated discharge capacity of piping is dependent upon its condition.

CONDITION OF THE MAINS.

The nature of the water, with reference to its power to injuriously affect the mains is a subject of great importance, and any theory dealing with the discharge capacity of pipes has to deal with the possibility of the flow in those underground becoming impaired by the deposit of organic matter or tuberculous excrescences and incrustations (frequently formed by chemical action producing oxidation of the iron). The resultant nodules and carbuncles enormously increase the frictional resistance, and in some cases pipes even when covered with a preservative composition have been known to get smaller in delivery, and finally result in almost complete obstruction without any apparent external cause.

Box states that a main at Torquay some four miles in length, and consisting of 14,267 yards of 10-inch, 10,085 yards of 9-inch, and 170 yards of 8-inch piping, with 465 feet head of water (200 lbs. pressure), only delivered 317 gallons per minute, instead of the theoretical discharge (after making due allowance for friction) of 616 gallons. The pipes were scraped internally, with the result that the discharge was increased to 564 gallons and, after further scrapings, to 634 gallons, which is 18 gallons or a 3 per cent. excess on the *theoretical* discharge expected. The pipes had not been covered with any anti-incrustation composition, but it may be mentioned that similar pipes, covered with Dr. Angus Smith's solution, have been used with Torquay water for years without being very much affected. Dr. Smith's process consists of coating the pipes all over with a black enamel, which is only effectively applied whilst they are new and hot; the process is not an expensive one, and by giving to them a smooth surface favourably influences their discharging power.

A further illustration of deterioration is that of a 40-inch main connecting the Manchester Corporation Reservoirs of Godley and Denton, which was laid in 1850, and measures some $4\frac{1}{4}$ miles in length. It was scraped in 1899, and, owing to the necessarily cramped position that had to be adopted to perform this work, the ordinary Corporation Staff was augmented by a number of miners.

After this admittedly arduous task had been completed, it was found that 700 tons of vegetable and other matter, 2 cwts. of lead, and a portion of an old strainer frame had been extracted from

the mains before the Engineer could report that they were clear from inlet to outlet.

These are not the only old mains in the country, and it is important that any theoretical calculations of the discharge capacity of pipes should be modified in accordance with the time that they have been underground; consequently, the fact cannot be too much emphasised that little reliance can be placed on a standing pressure record, whilst even the indication that the original size of the main was satisfactory may subsequently prove to be a very misleading factor.

When, therefore, a diminution of flow, not due to leakage, manifests itself, it may be at once assumed that it is either due to confined air, which is generally overcome by placing air valves at the higher points, or more frequently to the blocking of the pipes through incrustation. As I illustrated a few moments ago, tables have been formulated which enable us to calculate the loss caused by skin friction in clean smooth pipes, and although some American authorities state (very guardedly) that the discharge capacities of rough and corroded pipes may be estimated on a 70 per cent. ratio of that of clean smooth pipes, it is practically impossible to devise a table sufficiently reliable to calculate with any degree of accuracy the loss caused by incrustation or other accumulations, and an unintelligent use of friction formulæ can only lead to false conclusions.

In a treatise on the subject, an American colleague writes:—

“It does not require any scientific calculation or costly conference of Engineers to determine the adequacy of a water supply at any or all localities of a water works system. At all important points, where the pressure or volume is unknown or in doubt, hose streams and pressure gauges should be attached to the nearest hydrants, and by adding stream after stream, the maximum number available can be quickly and easily determined. Such a simple investigation should be regularly practised, deficiencies noted, and steps taken for correction *in advance of the fire.*”

The result of reductions in the diameter of pipes caused by accumulations can to some extent be remedied by an increased velocity, but it will be seen from the following figures how proportionately great an increase of pressure is necessary to neutralise a diminution of volume:—

A 6in. pipe at 5 lbs. pressure discharges approximately 1580 gals. per min.

5in.	10	„	„	„	„	„	„
4in.	25	„	„	„	„	„	„
3in.	79	„	„	„	„	„	„
2in.	400	„	„	„	„	„	„
1in.	6,400	„	„	„	„	„	„

The figures are based on the capacity formula of *short clean pipes—friction disregarded*. The possibility of a diminution in the sectional area of a main through silting or other causes thus creates a most serious element of danger in the case of Ordinary Sprinkler Installations where only a static pressure of 10 lbs. is required at the level of the highest sprinkler.

A 6-inch pipe reduced to the capacity of a 1-inch by obstruction will record the same pressure as a clean pipe on the gauge, and yet the resultant reduction in volume might render the installation as a Fire Extinguisher practically worthless if the outbreak attained any magnitude.

Let us consider a moment the effect pressure has on the discharge from a Sprinkler Installation.

It is calculated that from one sprinkler at

5 lbs. pressure, 7·769 gallons per minute issues.							
10	„	„	10·981	„	„	„	„
25	„	„	17·356	„	„	„	„
50	„	„	23·55	„	„	„	„
75	„	„	30·069	„	„	„	„
100	„	„	34·719	„	„	„	„

A mill supplied from an old 6-inch main carried a considerable distance and frequently tapped, with sufficient force to show by gauge 10 lbs. standing pressure at the highest sprinkler meets the requirement of the Rules, and still the water service might be such that when the waste valve has been opened for a few moments the installation falls back on the tank pressure. What might happen? Assuming a fire started in the top floor of a mill the pressure from the tank being 15 feet head, would equal 6·5 lbs., and this would deliver 9 gallons of water per minute per sprinkler. Supposing 10 sprinklers operated a 7500-gallons tank would last about 80 minutes, if 25 sprinklers operated the tank would last 33 minutes; if 50 operated 18 minutes, and if 100 sprinklers operated the tank would only last 8 minutes. Assuming that the fire started on the ground floor of a four-storeyed mill 60 feet below the tank, the pressure at this point would equal about 25 lbs. per square inch, and the discharge would be about 18 gallons per sprinkler per minute, so that if 10

sprinklers operated a 7500-gallons tank would last about 40 minutes.

If 25 sprinklers operated, about 17 minutes.

50	„	„	„	8	„
100	„	„	„	4	„

The average tank is between 5 feet and 6 feet in depth, and in emptying the pressure would vary by some $2\frac{1}{2}$ lbs., but this has been ignored. Of course it would be a very poor main that did not reassert itself before the tank supply was exhausted; still as there are mains which would give less than 25 lbs. running pressure at the sprinklers on the ground floor, and further, owing to upright shafts, strap races, and the like, the possibility of sprinklers opening on other floors must be considered, with the conclusion that the number of sprinklers running would quickly empty the tank, and unless relief was speedily obtained the result would be serious.

The fact that the majority of fires in sprinklered risks are extinguished by the operation of a few heads only has not been overlooked, but it is to be regretted that we have no reliable and complete details on the point of the experience in this country, and it would be specially interesting to know the percentage of failures on the *upper* floors, where the pressure is weakest.

The statistics to hand from the United States show that 70 per cent. of the sprinkler fires were subdued by the operation of seven or less sprinkler heads. The experience, however, in cotton mills in this country (by far the largest sprinklered class) demonstrates that a very much larger number of heads than seven generally operate in case of an outbreak.

The present standing pressure test as a qualification for the ordinary sprinkler discount is valueless as a detector of even serious defects in a water supply, and also useless as an index of efficiency, as will be seen from the following specific cases in point:—

- (1) Sprinklered risk: Water supplies, town's mains and elevated tank; installation on a four-inch basis. Town's main 4-inch, standing pressure 50 lbs., running pressure with a 2-inch drip valve open for $3\frac{1}{2}$ minutes, 18 lbs. Notwithstanding this poor running pressure this risk was qualified for full discount.

A fire broke out and speedily got beyond the control of the few heads which first opened; when more heads opened and the fire brigade came to tap the 4-inch main, the town's pressure fell to a very low point, and the tank was empty. Total loss of £16,000 or £17,000 resulted.

- (2) Sprinklered risk : Standing pressure 35 lbs., pressure with a 2-inch valve open 23 lbs. The opening of 18 sprinklers would be sufficient to leave practically no pressure at the level of the highest sprinkler so far as the town's main is concerned.

A fire broke out, and was held in check by the sprinklers until the tank was exhausted. Two hose streams still further reduced the pressure. Loss, £15,000.

- (3) Sprinklered Cotton Mill : Standing pressure varied from 44 to 53 lbs., according to the time of day. With 2-inch drip valve open the pressure fell to 38 lbs.

Fire broke out in the seventh storey in a mule-head stock, the pressure at the time being further reduced by two lines of hose. Estimated loss, £15,000.

The valuable paper by Mr. T. A. Bentley (No. 8 *Federation Journal*) on "Failures of Sprinkler Installations and their Causes," deals exhaustively with this branch of my subject.

I may be allowed at this point to briefly refer to the vexed question of proportionate fall or reduction allowed between standing and running pressures for discounts under Standard A.

The rule states that the reduction, when a 2-inch valve is fully open and the running pressure at its lowest, must not exceed one-half of the standing pressure.

When ascertaining the discharge capacity of a pipe one of the multiples is the diameter of the pipe in inches, squared.

6in. squared is 36in.	4in. squared is 16in.
5in. ,, 25in.	2in. ,, 4in.

As the squared diameter of a 2-inch pipe to those of 6-inch, 5-inch, 4-inch pipes is in the ratio of 1-9th, 1-6th, 1-4th respectively, the theoretical fall in pressure to be expected at the opening of a 2-inch valve would approximately be 11 per cent. in the case of a 6-inch main.

17 per cent. in the case of a 5-in. main.
25 ,, ,, ,, 4-in. ,,

The advantage to be obtained from an immediate application of the means of extinction of a fire in its incipient stage are unquestionable, and from this point of view Sprinkler Installations undoubtedly form one of the most valuable adjuncts to modern Fire Extinguishing Appliances. It will be, however, generally admitted that the merits of Automatic Sprinklers are entirely dependent on the adequacy and efficiency of the water supply which feeds them. The strength of a chain is that of its weakest link, and defects in mains must to a large extent neutralise the efficiency

of even a perfect installation. From this point of view it must be conceded that the 50 per cent. proportionate fall allowance under the rules is a liberal one, and I venture to think should not readily be departed from.

The introduction of the running pressure test for Standard discounts under Revised Rules can only be regarded as a scientific and practical means of attaining an end much to be desired. Further encouragement might advantageously be given in the interests of all concerned with the view of inducing Insurers, with ordinary installations, to conform to Standard B requirements.

A distinct weakness still, however, appears to exist in the absence of any arrangement for the periodical examination of sprinkler installations, which is the only means of discovering post-installation defects. The present sporadic and uneconomical system of examination could with advantage be substituted by a definite and cohesive scheme of centralisation and Company distribution.

I might mention, before leaving the question of sprinklers, an attachment which would admit of the Fire Brigade connecting a hose pipe from their steam fire engines to the installation in case of fire, and thus ensure that water at high pressure will be distributed on to the fire through the sprinklers which have opened. This connection would have the additional advantage of not only ensuring a high pressure of water on to the seat of the fire, but also the *distribution of the high pressure on the seat of the fire only*, and not, as so frequently is found to be the case, over the major portion of the room or rooms attacked. The adoption of the attachment, which should be provided with a back pressure valve, and its utilisation in case of outbreak by the brigades, would have a tendency to keep down heavy water damage. Considerable importance is attached to this device in the United States, where it has proved valuable on a number of occasions.

HYDRAULIC MAINS AND INJECTORS.

Many large towns, in addition to the ordinary distributing system, possess hydraulic mains (sometimes controlled by a private company), which run through the principal streets.

Water is forced into these mains by means of pumps at pressures varying up to 1000 lbs. per square inch, for the purpose of actuating hydraulic lifts and the like.

A hydraulic injector is an appliance for augmenting the low pressure in town's mains by a connection from one of these hydraulic mains. To conform to the requirements of the Sprinkler Rules, the pressure on this main (hydraulic) must never fall below 600 lbs. per square inch.

The principle of an injector is simple. Pressure is always available in the hydraulic main. The valve controlling the supply of high-pressure water to the low-pressure main must be automatic in its action, and as the injector has not to be "driven" or "propelled," as has a pump, if one ensures the opening of the valve, the high pressure in the hydraulic main does the rest.

The apparatus may be set to maintain any desired pressure in the installation.

Each injector is provided with a large inlet for the low-pressure feed, the water from which passes into a chamber in the interior of the apparatus, where it surrounds twin nozzles supplied by water from the hydraulic main. The high pressure and velocity of the issue from these nozzles displaces the water surrounding them, and drives it forward out of the injector, through a Back Pressure Valve, into the installation.

Section "E" of Rule 12 reads:—"The hydraulic accumulator "connected with the apparatus must be fitted with a small outlet, "so that it will be always in motion, or come into action at regular "periods, and there must be an indicator showing the number of "strokes made."

To comply with this Regulation an accumulator is placed by the side of the injector apparatus proper; over the accumulator, and arising therefrom, is a loaded ram, attached to the lowest surface of which is a slotted plate, which traverses a vertical rod by the side of the accumulator. This rod is in turn attached to the operating device of the injector, and the automatic action is as follows:—

A drip cock is arranged to waste continually, which causes the accumulator to lose water and the weighted ram to sink, and in its downward course along the rod the slotted plate presses upon a stop and this, in turn, opens the valve governing the high-pressure supply to the injector, which at once replaces the water lost through the accumulator through leakage. With the inflow of water the ram again rises until it touches an upper stop on the governing rod, and by pressing under this stop it lifts the rod and closes the valve controlling the high-pressure supply.

The injector is made automatic, and the drip valve allowed to

constantly waste water to ensure the frequent movement of the various parts, and thus prevent "sticking" and failure at the critical moment in case of fire.

The number of occasions on which the automatic apparatus is called into action is determined by the amount of waste from the drip valve.

There is a "Safety" device fitted to the injector which acts in case the shutting-off device fails, and it opens a safety valve, thus preventing the pressure in the installation rising beyond safe limits.

Some Corporations will not allow a hydraulic injector to be fixed in direct connection with their mains, and when this eventuality arises the apparatus is fixed on a pipe supplied by a suction tank, the capacity of which suction tank and diameters of the connections from town's main thereto are prescribed in Section "G" of Rule 12. I may say that in the case of a 6-inch installation the supply pipe to the suction tank would be split into two 4-inch pipes, as the supply pipe must be controlled by an equilibrium ball valve, and such a valve to control the pipe of larger diameter than 4-inch is not a commercial success.

There are two considerations to be borne in mind when advocating the adoption of a hydraulic injector; the first is that hydraulic mains are not found everywhere, and the second is that the apparatus is rather a costly one.

Theoretically, it might be conceded that a scientific premium should either embody concessions for good water supplies or penalise the indifferent ones, but apart from the variable local conditions and circumstances to be considered, it is very doubtful if water supplies have progressed *pari passu* with the cumulative and exposure hazard of large centres.

Notwithstanding, however, the non-existence of a necessary Standardisation of Hose Couplings and Hydrant Fittings, a great advance has been made in appliances for the Extinction of Fire, but their utility must prove abortive when unaccompanied with a good and constant supply of water.

A governing factor in the consideration of Water Works Schemes is that of Finance, and the apathy and indifference of many public bodies to provide a supply of water adequate for protection from fire can only be attributed to the question of cost, an economical fallacy easily demonstrable. The fact should not be overlooked that each conflagration starts with one small fire, and very often the possibility of a Cripplegate in miniature hangs upon the

temporary failure in volume or a serious reduction in the pressure of a few streams of water.

The expression—water supply—has a very wide interpretation. Its essentials, however, from an Insurance point of view are ample volume at good maintained pressure, easily accessible and available at all times. Judged by this standard the street mains invariably leave much to be desired, and too frequently lack either sufficiency of volume or adequacy of pressure to combat a fire of magnitude. The requirements of sanitary science, the development of the manufacturing supply, and the tendency on account of the value of real property to erect very high buildings, beyond the control of the ordinary appliances in the narrow streets of the congested areas of our large cities, have rendered the older water systems inadequate and unreliable. A study of the subject leads to the conclusion that the necessary improvement can only be secured by installing larger or additional mains of a sufficient strength to maintain a pressure capable of commanding the desired altitude. A redeeming feature will, however, be found in the fact that many of our large towns have either laid additional trunk mains or constructed new reservoirs offering the possibility of an increased pressure.

Frequently, however, an outbreak in the crowded city centres, and the consequent heavy “draw” from the mains, still reveals a shortage of volume or pressure, or both, when the contrary has been commonly supposed to exist.

The great ability and experience of Engineers has now reduced the principles of water supplies to a well-defined science, and one regards with admiration the difficulties which Hydraulic Engineers have overcome to supply towns of magnitude from great impounding and catchment reservoirs; but it must be admitted that in the working out of water schemes in the past, the question of Fire Protection has not received adequate attention. Evidence, however, is not altogether wanting that modern Engineers show a keener appreciation of the importance of the subject.

In conclusion, I trust it will be understood that this paper is not submitted as a complete treatise, but will be accepted merely as an attempt to collate information on this instructive but highly technical subject of water supplies and water pressure, and to give to it a practical value. I can only hope that some colleague better equipped for the duty than myself will, on some future occasion, more amply develop the form that I have attempted to create but have only feebly conceived.

THE CONFLAGRATION HAZARD.

By J. B. LAIDLAW.

*A Paper read before the Insurance Institute of Toronto,
February, 1908.*

WE are to consider this evening some phases of the Conflagration hazard, more particularly in reference to recent disasters of that kind, and I may say at once that it is not my purpose to recapitulate details regarding the great conflagrations of the past.

Three years ago I had the honour of reading before this Institute a paper on Conflagrations, which was published in the Proceedings of 1904-5, and I would refer anyone who desires information in regard to the more important conflagrations of the past, including those at Baltimore and New Orleans, to that paper.

Those who have studied the origin of modern fire insurance tell us that the conflagration, known as the Great Fire of London in 1666, inspired the formation of joint-stock fire insurance companies such as are doing business to-day. Since then there have necessarily been great changes in the methods of insurance companies and in the views and practices of their underwriting managers, but just as the Great Fire of London inspired the origin of the companies, so each of the important succeeding conflagrations has had a very marked effect upon the development of the companies to their present status both as to financial responsibility and general methods of doing business.

Anyone who will take time to delve into the history of fire insurance must be impressed by the ever-recurring record of conflagrations, and if the future may be anticipated by the experience of the past, the conclusion is inevitable that conflagrations will continue to recur during the years to come.

The great fires of the past have occurred in almost every civilised country. They have, as might have been expected, occurred sometimes in cities where the buildings were, speaking generally, of somewhat flimsy construction, with fire-extinguishing appliances either very crude or quite inadequate, but they have also occurred in cities which were very well built, with fire-extinguishing appliances of the best; where the climate was neither excessively hot and dry, nor excessively cold; where, in fact, in the best judgment of the insurance fraternity doing business in such towns or cities (who, it must be presumed, were quite familiar with the conditions), the chance of a conflagration was very remote.

It is a fact perhaps not generally known that the number of fires occurring in any city varies comparatively little from year to year, the fires increasing steadily with the size of the city and the increase in population, but bearing a ratio to the population which varies but a few points between one year and another.

At the same time the amount of loss in each city will vary greatly each year. It would seem that for a season either the climatic conditions are unfavourable to the origin or spread of fires, or that the brigade is unusually alert, so that the fires are, speaking generally, extinguished with little damage; whereas at another time the climatic conditions are favourable to the origin and spread of fires, such as a severe drought, and it may be, too, that by some relaxation of discipline in the brigade, or some other cause, the fires which break out are not handled quite so well.

Conflagrations are merely small fires grown larger.

It is my opinion that just as under the operation of the law of average there is a fairly constant ratio of fires to population of any city year by year, so the same law of average will operate, and does operate, to bring about a fairly constant amount of loss over any country taken as a whole, and even when a great conflagration occurs in one country it is usually found that there is a lessening of fires in other countries, so that I believe if one had the statistics for the whole world it would be found that year in and year out there is very little variance in the number of fires which occur, and comparatively little difference in the total amount of loss which occurs.

I think it would be found, too, if the statistics were available,

that of the fires which occur, a certain definite proportion will extend to a second building; a smaller proportion to a third building, and so on.

If these theories are correct, then a conflagration is as normal a condition as an ordinary fire.

In the Middle Ages all catastrophes were attributed to an over-ruling Providence, but as in medicine it has been recognised that every disease and every plague has its cause and its cure, so if we will recognise that conflagrations are a normal condition and may be looked for wherever certain conditions exist, a great step will have been taken towards the control and prevention of such disasters.

Conflagrations have occurred in cities and towns varying as to construction and fire protection all the way between the two extremes referred to. They have occurred at all seasons of the year and have started at all hours of the day or night.

Sometimes they originated in a hazardous factory; sometimes in a fine business block which was the pride of the citizens, and sometimes in a harmless-looking residence.

On some occasions the disaster apparently was due to the failure of the human equation in the fire-extinguishing equipment, such as the absence of part of the brigade, or the illness or disablement of some of their chief officials, and sometimes it was due to the absence or illness of the only man who understood the waterworks system and able to cope with the emergency. Sometimes the failure has been of a mechanical nature through breaking of a pump or fracture of water mains, while the greatest of all such conflagration disasters, that of San Francisco in 1906, was due to the rupture of the water mains by the earthquake.

San Francisco had a very efficient fire brigade and a good water supply, but with the mains broken and empty the fire brigade was soon helpless, and although for a short time they could continue the fight with water from some cisterns (the relics of ante-waterworks days), and make a last stand by the free use of wine as an extinguishing agent, in a few hours they were powerless to stop the spread of the flames.

It may not be out of place to quote from the Annual Address of the President of the National Board of Fire Underwriters some statistics of that conflagration.

The area burned over was about 3000 acres, or about 4.7

square miles, embracing 520 city blocks upon which were erected 25,000 buildings. Of these, 3000 were said to be of brick or stone construction, while 22,000 were constructed of wood. About one-half of the 25,000 were occupied for business purposes either in whole or in part, the remainder being occupied solely as dwellings or residential flats.

The value of the property destroyed by fire in that conflagration is estimated conservatively at \$350,000,000.

The loss paid by 243 insurance companies upon 150,000 claims made upon them amounted to \$175,508,530. This was distributed among companies organised in California, companies of other States, and foreign companies regularly admitted to and licensed in California, while in addition several millions were paid by companies not regularly licensed in the State, but writing surplus lines.

In addition to the above, there was a large amount of re-insurance collected from about twenty foreign companies which accepted reinsurances under reinsurance treaties from companies licensed in the State, and as the amount collected from these foreign reinsurance companies was deducted by the regularly licensed companies when reporting their net loss, the amount which these reinsurance companies paid, estimated at from \$45,000,000 to \$50,000,000, should be added to the above total, which would bring the total loss paid by insurance companies throughout the world for this conflagration up to approximately \$225,000,000.

One of the most remarkable features of this conflagration was the ability of the fire insurance companies generally to stand so great a shock, and how great it was can perhaps be appreciated when we learn that the combined surplus of all the companies regularly licensed in California (including as regards foreign companies only their funds in the United States) amounted to \$163,000,000.

It was also pointed out by the President of the National Board that owing to the enormous payment in San Francisco the fire-underwriting results in the United States from 1860 to 1906 inclusive resulted in a net loss to the companies of \$79,708,174.

The conflagration at Chicago in 1871 brought about the immediate failure of over fifty joint-stock fire insurance companies, and as many more which pulled through that conflagration were ruined by the one at Boston in the following year.

It is stated that only twenty companies suspended operations after the San Francisco conflagration, and several of these resumed shortly afterwards.

This great difference in the result, in the face of a conflagration so much more serious than that of Chicago, was probably to a large extent due to a better appreciation of the conflagration hazard by the managers of insurance companies.

Since that San Francisco disaster the companies have considered their position in regard to the hazard from earthquake and have endeavoured to come to some understanding with one another by which this hazard would be definitely excluded unless a definite extra premium were paid by the insured for its assumption; that is, not the hazard of the falling of the building, but the hazard of fire originating from earthquake. Thus far, however, it has seemed to be impossible to arrive at an understanding, and it must be confessed that the prospects are now anything but bright for the consummation of such an agreement. If the negotiations should come to nothing it will leave the hazard of fire originating from earthquake as one of the many causes through which conflagrations may arise.

Upon the fact that conflagrations have occurred with more or less regularity in the past can surely be based the assumption that they will recur in the future, and if in addition to the ordinary hazard of fire, of wind, of drought, of inadequate water supply, of poor construction and hazardous occupancy, of the sickness or disablement of officers of the brigade, or any other of the ordinary causes which have contributed to such disasters in the past, be added the danger of the quaking of the earth, surely it would be wise for every insurance company most seriously to consider its total liability in every town and city in which it is doing business.

Some companies, it is understood, while very firm in regard to the amount they will accept in certain mercantile districts, do not place any limit upon their operations in the residential districts of the same city, but it may be pointed out that in San Francisco one-half of the buildings that burned were occupied for residential purposes, and there are numerous instances where a conflagration was largely confined to the residential district.

No prudent underwriter to-day would consider the accept-

ance of unlimited amounts on any individual risk no matter how good it might be as to construction, occupation, or fire protection, because, as to the individual risk, experience has shown that no matter how good the risk may be or how safe it may appear, some time, somehow, a combination of circumstances will occur which will result in a very serious, if not total, loss to that property, and so the system has been developed under which a company establishes limits based upon its general business, its experience, and its assets for each class of property which is offered for insurance.

Not only is such procedure now recognised to be wise and prudent, but the records of fire insurance are marked or marred by company after company, which, departing from this practice, has perhaps enjoyed a temporary prosperity, but sooner or later been overwhelmed.

While a company is fixing its lines or limits, is tempted to somewhat increase them on some classes if the experience has been favourable, it does not allow the influence of that past favourable experience to bring the line upon any individual risk out of proportion to the limits upon other classes of risks which it insures, and it would seem to me that the same rules and principles should be observed when considering the gross liability in any town or city in which a company is doing business.

The loss ratio in San Francisco for twenty-two years before the conflagration was only 28.7 of the income, and, after provision was made for the increase of liability and reserve, the loss ratio did not exceed one-third of the premium income.

This remarkable experience, caused largely by conflagration rates without a conflagration having occurred during that period, tempted many Offices to unduly increase their limit, or to desire to unduly increase their limit in respect to their business in that city, with the result that for some years previous to the conflagration there was keen competition for the business there, so much so that rates were steadily declining, the practices of the local underwriters were becoming more lax, and their expenses were increasing by leaps and bounds.

The experience in San Francisco of the results of a local low loss ratio is being repeated every year in many cities. Because an individual church or an individual factory does not burn, the prudent underwriter is not tempted to largely increase his

limit upon that individual risk, nor to consent to a form of wording which being generally adopted would be ruinous to his business, nor consent to the payment of excessive commission in order to obtain that individual risk. He looks at the result which would occur if such practices in regard to that individual risk were to be applied to his entire business, and is therefore content to allow that individual risk to go off his books rather than compromise with the principles which he has laid down to govern his operations, but when dealing with their liability in a city where the experience has been favourable, some companies are often tempted to follow a procedure in regard to their city liability which they would not for a moment countenance in regard to an individual risk, and so we find in cities where for a time through fortuitous circumstances the loss ratio has been low, that the underwriters apparently shut their eyes to the ever-present conflagration hazard.

They relax the application of rules which they have adopted for fire protection and for building construction, and are often lenient in the application of schedules which they have drawn up providing charges for the hazards of construction and occupation. The result is that in a short time the city authorities become lax and do not properly maintain the civic fire appliances; the waterworks are not extended and enlarged to keep pace with the growth of the city; the individual builder soon learns that there is nothing to be gained by careful attention to the prudent safeguards which the underwriters' rules demand, while the individual insured turns a deaf ear to every suggestion made for improvement to his risk.

Then the companies themselves will in such a city sometimes indulge in a mad scramble for business, just as they did in San Francisco, with the result that a condition of affairs develops which is neither satisfactory to the public, to the companies, nor to the *bona-fide* agents whose livelihood is dependent solely or largely upon fire insurance.

If the companies would look the conflagration hazard square in the face and determine that just as upon any individual risk they will not consent to write upon it an excessive line, or a line out of proportion to their assets and to their general business, so in no city, no matter how profitable the business might have been in the past, would they accept a total liability out of proportion to their general business and to their total assets,

then we would very soon see an entire reversal of the abnormal and ridiculous conditions which are at present the characteristic feature of fire insurance in almost every city throughout the world.

In every city the companies are absolutely necessary for the protection of the public; in fact, it is impossible now to cover many of the risks by the underwriting capital of the country ordinarily engaged in business there, and if it were not for re-insurance treaty arrangements made by many of the larger companies with foreign insurance corporations, a great deal of the insurance now carried by the regularly licensed Offices would have to be dropped.

Notwithstanding, however, the fact that the companies are absolutely necessary for the protection of the public, and that in all probability if they paid no commission at all, a large amount of business would come to them, we find the almost universal condition of high expense ratios in the places where the companies are not only a necessity but are incurring very large liabilities which any day may sweep away every dollar of their capital and assets.

It is sometimes said that insurances on residential risks is the safe business to accept, but in that apparently safe and profitable business lie the possibilities of enormous loss. In this City of Toronto the average rate on residential risks may be put at 75 cents for three years, so that if a company has an annual gross income in premiums of, say, \$15,000 per year on dwellings in this city, they must write each year policies amounting to \$2,000,000 and have continuously \$6,000,000 of liability in force on dwellings. Even supposing, for the sake of argument, that the loss ratio on dwellings in Toronto be as low as 40 per cent., on the other hand the expenses on that particular class, owing to the small premiums received, would amount to at least 40 per cent. of the income, leaving a margin of 20 per cent. of the premium paid as profit, which would be \$3000 per year.

I have asked several business men and financiers whether they would be willing for a payment of \$3000 a year to guarantee a company to the extent of \$6,000,000 against the possibility of a conflagration in the residential district of Toronto, or to accept a share of it at the rate of an annual payment of \$500 to guarantee \$1,000,000, but they one and all laughed at the suggestion.

When considering the insurance upon dwellings, the enormous liability which accumulates under the three-year system of writing policies should receive more attention than it now does, both from the company which issues the policies and by the public which accepts them.

Anyone who has even a superficial acquaintance with modern business methods will admit that the values in city districts are rapidly and steadily increasing, so that where a few years ago in this City of Toronto or other cities of similar size the values averaged in the central districts about \$500,000 per acre, they now often average over \$1,000,000 per acre, and frequently more than double that sum in large commercial centres.

Then, too, while there may have been great improvement in fire-fighting appliances, an increase in the number of firemen, provision of more and larger steam fire-engines, with water towers, aerial trucks, and even the installation of that most modern method, the high-pressure water system specially for fighting fires, there has, on the other hand, been such a steady growth in size and height of buildings that the hazards have grown more rapidly than the development of the fire-fighting apparatus, so that we now find cities with buildings five, six, and seven storeys in height, but having only a "three-storey" or "four-storey" fire department.

The law of average teaches us that like conditions will produce like results, and just as surely as the sun will rise to-morrow we may expect that conflagrations will recur, and the outstanding lesson to be learned from disasters of this kind in the past would seem to be that the principles and practices which govern companies in the consideration of individual risks should be applied in a modified form to the consideration of their gross liability in all the towns and cities in which they do business.

Then, too, the prudent Insurer should interest himself in this matter, and just as he would hesitate to accept the policies of a company known to be reckless in the lines it would write upon an individual risk, so he should not accept the policies of a company which was reckless in its acceptance of unlimited amounts subject to a conflagration.

If the Dominion and Provincial Governments are to continue to exercise supervision over the operations of insurance companies, make enquiries into their solvency, and license only

those which comply with certain regulations, they should consider not merely the assets which a company may happen to hold, but also the liabilities which it has incurred, and companies should be asked to furnish a return each year showing their total liability in all cities of over 25,000 population, with the amount of liability divided between the mercantile section and the remainder of the city.

There are at present in Canada (and the same condition prevails in nearly every city) local companies which carry at risk very many times their total assets. Even if the Government does not put a limit upon the operations of such companies, that is, prohibit them from incurring a liability in any city of more than a certain number of times their entire assets, at least they might have the information published to enable the policy-holders to judge for themselves in this matter.

When both Company and Insurer have come to a clear recognition of the conflagration danger in Fire Insurance, the excrescences on the business which now drain the life blood of the companies and of the *bona-fide* agents, and increase the cost to the Insured, will then, and not till then, disappear as mist before the rising sun.

POLICY CONDITIONS AT HOME AND ABROAD.

By ALEX. D. ROBERTSON, Foreign Superintendent,
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Paper read before the Insurance Institute of Liverpool, 1908.

COMPETITION at home and catastrophes abroad have of recent years brought the Conditions of Fire Insurance Policies to the forefront in the mind of the public and in the daily routine of our profession, with the result that we find it necessary to familiarise ourselves with the terms and the scope of the Conditions on our own, and on our competitors' Policies, to a far greater extent than was required some ten or twenty years ago, and many surprising decisions by Law Courts have necessitated Insurance officials seeking to acquire what I might term the "Art of Reading Policy Conditions." It is, consequently, somewhat fitting that this subject of Policy Conditions should have the honour of an early place in the deliberations of our Institute. It may seem presumptuous on my part to have undertaken to address you on so comprehensive a subject, but, as most of you are aware, the Federation of Insurance Institutes have allocated to Liverpool this subject of "Policy Conditions at Home and Abroad," and there is possibly an indirect compliment to the powers of assimilation of our young Institute, in the assumption that it is capable of digesting at one sitting, the Policy Conditions of the world. The subject is indeed a vast one, and in seeking to compress, within the confines of a single lecture, comments on matters extending over so wide a field, my remarks must necessarily be more or less superficial. My aspirations will be realised if this lecture, by its very deficiencies, but suggests to our Committee the desirability of providing a course of lectures on Fire Insurance Law, by a legal gentleman; and if I can but succeed in creating a desire for a further knowledge of the subject in the minds of a sufficient number of my hearers to ensure a large support to such a course of lectures I shall be content.

There was formerly open to the lecturer on Policy Conditions the doctrine of uniformity to be urged as the acme of perfection. There is no longer any point left in arguments for uniformity, as the Offices have practically conceded the principle. In Foreign business we have the Uniform Policy Conditions adopted in 1904, agreed upon by all members of the Fire Offices' Committee (Foreign) for use in certain countries and for Home Foreign business. These Conditions are also largely used for other countries to which the agreement does not extend, elsewhere than in North America and on the Continent; and in Home business there are now certain principles agreed upon which, it is true, ensure but a partial uniformity in the meantime, but it is perhaps not too venturesome to hope that they form a stepping-stone to complete uniformity.

The strongest argument for uniformity—if such were required—would be found in recent outstanding events where Companies who had inserted certain protecting clauses in their Policies, found themselves prevented from even trying to secure the benefit thereof through dread of public opinion, because other Offices had not similar clauses and were paying. That there has been so little demand for uniformity on the part of the British insuring public is probably due to the fact that Policy Conditions are so very seldom brought into play; but we find this demand does exist abroad, and in countries where uniform Conditions do not exist we are met with the necessity of issuing “Common Policies” where all Offices sign on a single policy form for the amount of their individual cover, or of inserting a clause in the manuscript portion of the policy to the effect that the Company agrees to substitute for its own, the Conditions of the leading Office on the risk. I hear that even in England this latter practice is not unknown.

On the Continent we find Conditions are practically uniform in Holland and Germany, and, for mercantile insurances, at Antwerp. In Sweden Companies are gradually adopting the Conditions recommended by the Tariff Union. The Conditions of the F.O.C. (Foreign) have formed the basis of uniform Conditions in Australasia, as they will probably do for other countries for which Conditions are at present under consideration. Only in certain parts of North America are Policy Conditions imposed by statute, but in Japan it is necessary to submit Conditions for the approval of the Government.

But if the question of uniformity affords no longer any fruitful ground for discussion, we have a substitute in the new issues raised by the advocates of no Conditions at all. We are all aware of the recent remarkable development in this connection and of the part it played in bringing about the agreement as to principles amongst members of the Fire Offices' Committee. But as the seed has been sown in the public minds that Fire Policies without Conditions are possible, and, as Lloyd's are, I believe, issuing policies without Conditions, I fear the question is not killed, but may possibly prove a source of trouble in future. There are many views as to what would constitute a perfect Fire Insurance Policy—a well-known Fire Loss Assessor says that the perfect policy would be the one which bears the nearest resemblance to a promissory note, whilst Mr. Walford in his *Encyclopædia*, referring to a policy issued without any Conditions, quaintly remarks—"There were no Conditions attached. It is just such a form as might be used if all parties to such contracts were uniformly honest." If, then, a perfect policy be conditionless, and a conditionless policy only suitable for a world of universal honesty, I fear we shall have to content ourselves with something short of perfection, and we shall always have conditions of some sort with us.

It has been stated, in the prospectus of an Office, that Policy Conditions were primarily intended for the information of the Insured, which I understand to mean that the chief object of conditions is to call the attention of the Insured to certain obligations which rested upon him, under Common Law, rather than to confer any advantage upon the Company which Common Law would not afford. I think we are all apt to use this argument in a general way when discussing Policy Conditions, but it is only sound in a relative sense, in so far that it is only applicable to some of the Conditions, the others being aimed at protecting the Company against other Insurers—as the "Marine" and "Contribution" clauses—or to exclude certain risks which the contract, interpreted by Common Law, would include, such as fires due to earthquakes and riots. I have thought it desirable, in the comments which follow, to consider the various Conditions from this point of view, and to endeavour to bring out where any advantage and what advantage, accrues to the Company from the Condition, and where, on the contrary, the Condition is only useful as information for the Insured.

The process which has been going on for two hundred years of adding protective clauses as legal decisions revealed points of weakness resembles the continuous contest going on in the world's Navies, each bigger gun bringing increased armour-plating to resist it, and the result has been that Policy Conditions have become veritable "Dreadnoughts." I think there is reason to suppose, however, that there will be a movement in the future towards reducing the number and length of the conditions, and although no Office has yet got down to the bed-rock of necessity laid down in the "Home Principles," some already have gone a long way in that direction.

It would almost seem, however, as if there were no relief for the British Insured in the matter of lengthy printed clauses in his policy, for anything he may gain in shorter Policy Conditions seems to be counter-balanced by the very formidable lists of warranties inserted in many policies on manufacturing risks.

The views which I shall advocate are in the nature of fewer and shorter conditions.

Home and Foreign Conditions are in so many respects different that they would in reality form two distinct subjects. Rather than divide my lecture into two parts—one Home and the other Foreign—and so do but scant justice to either, I have preferred to take advantage of the fact that the Foreign Uniform Policy Conditions are largely analogous to Home Conditions, to consider both at the same time and to make a comparison at the same time as a commentary. And as there is always a certain interest in comparing the modern with the old, I purpose making occasional reference to a set of Policy Conditions, dated 1816, which I have chosen as being the first Conditions which were actually printed on the policies, the earlier ones having been incorporated in separate documents known as "proposals."

DESCRIPTION OF PROPERTY.

The first Condition in the 1816 policy ran—

"Any Person desirous of effecting Insurances upon
"Buildings or Goods must furnish the Office or its
"Agents with a particular Description thereof; and
"if there be any Omission or Misrepresentation in
"describing the Buildings or Goods, so that the same

“be charged at a different Rate of Premium than
“they otherwise would be, this Office will not be
“responsible in case of any Loss or Damage. . .”

Although not included under the heading “Conditions,” there is in the preliminary part of this old policy a clause which is virtually a Condition, which, after reciting various specially hazardous premises, etc., which may be insured, adds “all which Special Hazards must be inserted in the policy to render the same valid and in force.”

Condition No. 1 of the U.P.C. (Foreign) reads—

“If there be any material misdescription of any of the
“property hereby insured, or of any building or
“place in which such property is contained, or any
“misrepresentation as to any fact material to be
“known for estimating the risk, or any omission to
“state such fact, the Company shall not be liable
“upon this Policy so far as it relates to property
“affected by any such misdescription, misrepresenta-
“tion, or omission,”

and the clause in use in Home policies is practically identical therewith. The “Home Principles” of the F.O.C. do not mention this clause, and one Office at least, in the latest editions of its policies, has left the condition out entirely.

The first difference we notice between the old and the new is in respect of the part reading “any person desirous of effecting insurances upon buildings or goods must furnish the Office or its agents with a particular description thereof.” This is now entirely dropped in English practice, but we still find a clause of similar effect in some Continental countries, where it has been found exceedingly useful against the plea, sometimes put forward by the Insured, that the error in description was made by the Company’s agent or official.

You will next notice the introduction of the word “material” in the modern clause. This alteration is in language alone, as the meaning was there even in the old clause, and it was, and is, always a question for a jury whether any misstatement, omission, or misdescription is material, that is to say, whether, if the fact had been correctly represented, it would have been “likely to modify the Company’s opinion of the risk,” as Continental Conditions phrase it. It will also be observed that, while the old clause refers only to omission or misrepresentation in describing the buildings or goods, the

modern form extends its penalty to facts "material to be known," a wise extension, as in the old form it is left to the jury not only to determine whether a fact was material, but also whether it properly came within the definition "in describing the buildings or the goods." In one respect the modern Condition is less stringent than the old, in so far that misdescription, etc., only nullify the Insurance in so far as it relates to property affected thereby.

This clause does not seem to confer any appreciable advantage on the Company, and its omission would not materially weaken the position of the Offices, as Common Law would give the same protection. It may fairly be argued that its chief utility is to inform the Insured what is the effect of Common Law in respect of the policy.

ALTERATIONS AND RENEWALS.

In Home Policies I may take as a representative Condition the following:—

"If after the risk has been undertaken by the Company
 "anything whereby the risk is increased be done to
 "property hereby insured or to, upon, or in any
 "building hereby insured or any building or place in
 "which property hereby insured is contained, or if
 "any property hereby insured be removed from the
 "building or place in which it is herein described as
 "being contained, without in each and every of such
 "cases the assent or sanction of the Company signified
 "by endorsement hereon, the Insurance as to the
 "property affected by any such causes ceases to
 "attach."

The "Home Principles" of the F.O.C. are silent on this point, and the U.P.C. read as follows:—

"8. Under any of the following circumstances the Insurance
 "ceases to attach as regards the property affected
 "unless the Insured, before the occurrence of any
 "loss or damage, obtains the sanction of the Com-
 "pany signified by endorsement upon the Policy, by
 "or on behalf of the Company.

"(A) If the trade or manufacture carried on be altered,
 "or if the nature of the occupation of or other
 "circumstances affecting the building insured or
 "containing the insured property be changed in
 "such a way as to increase the risk of loss or
 "damage by fire.

“(c) If property insured be removed to any building or
“place other than that in which it is herein stated
“to be insured.”

As regards alterations in risk, the Home clause differs from the U.P.C. (Foreign) in this respect, that while the former limits the penalty to matters of increased hazard in the building insured or containing the insured property, the Foreign Condition, by introducing the phrase “Other circumstances affecting,” extends considerably the scope, and would apply, for example, to increased hazard in an adjoining building. It may, on the other hand, be pointed out that the Foreign Condition, by limiting its terms to “Building insured or containing the insured property,” misses the provision contained in the Home Condition for property insured in the open air. Some Home Conditions have a further clause “or if any addition to the risk arise from any cause whatsoever,” and there is a great deal to be said in favour of taking this clause alone and confining the Condition to the single phrase, “if any addition to the risk arise from any cause whatsoever.” This will include all that is contained in the more elaborate wording, and the detailed reference to alterations in buildings, etc., will not afford any greater protection.

The question arises as to whether the policy is nullified through an increase in hazard not known to the Insured. This is one of the questions most often raised by an Insured who has been reading his Policy Conditions, and I believe it is generally conceded by Offices that they will not enforce this Condition under such circumstances. In certain parts of the Foreign field it is permitted to insert in policies in favour of mortgagees or absent landlords a saving clause by which increase of hazard only carries the obligation to pay increased premium from the time the increase in hazard took place, and does not vitiate the policy.

As regards the second part of the Condition, that referring to removal, there is little difference to comment on. This is one of the clauses for which, with the greatest show of reason, one can plead that it is placed on the policies for the information of the Insured. There are Insured to whom it would not occur that it was necessary to inform the Company in cases of removal, and in the minds of such, if he read his Policy Conditions, this clause will possibly sow the seed of notice-giving,

but it does not seem to me that the Company gains anything by the insertion of the clause, as it would seem self-evident that if a claim be made for property damaged at another situation than that mentioned in the policy, the defence of the Company that it did not insure such property would be upheld without any special Condition to that effect.

An additional clause peculiar to the Foreign Conditions, and copied from American policies, is to the effect that, unless admitted by endorsement, the Insurance will cease to attach

“ If the building insured or containing the insured property become unoccupied, and so remain for a period of more than 30 days.”

Provision against a contingency of this sort can, obviously, only be made by a special clause, as there would not be any reasonable hope of any Court holding that it constitutes a material increase in hazard.

I can readily understand that there is no desire to introduce a clause of this sort into Home Policies, as it would entail a large increase of endorsements for little practical benefit. The clause has not been sufficiently long in use in the general Foreign field for its working to have been tested, but so far as I can judge, if a clause of this kind is essential, the Offices are likely to get all the protection which is of any real use by the less stringent variation of the clause, in use in certain Continental policies, which only penalises “abandonment” of the premises.

RECEIPTS.

Article 2 of the 1816 Conditions reads:—

“ All Policies shall be signed and sealed by three or more Trustees or acting Members; and no Receipts are to be taken for any Premiums of Insurance but such as are printed and issued from the Office, and witnessed by one of its Clerks or Agents.”

No reference to this appears in the “ Home Principles,” and it has disappeared from the more recently-revised Conditions in use in Great Britain. It is retained in the Foreign Uniform Conditions, however, in the following terms:—

“ No payment in respect of any premium shall be deemed to be payment to the Company unless a printed form of receipt for the same signed by an official or duly-appointed agent of the Company shall have been given to the Insured.”

In the old form the clause is largely in the nature of a warning to the Insured to be careful as to the receipts taken, and does not disavow any non-formal receipts. The modern Foreign clause has this essential difference that it covers the case in which money may have been paid *soi-disant* for the effecting or renewal of a policy, and *no* receipt be given. No special clause is necessary to protect the Company from outsiders issuing fictitious documents, and it is doubtful whether, even with a clause of this kind, the Company would be protected against the issuing of such by an agent. It might be held that as the individual was by common repute recognised as empowered to effect insurances—I speak of Foreign agents—the Company is responsible for such acts as he may commit which might reasonably appear to be within the scope of the powers he held. It has been argued that the clause as now worded in the Foreign Conditions necessitates the issue of First Premium Receipts, a practice which is not followed, as it is generally considered that the policy itself, embodying an acknowledgment of the payment of the premium, may reasonably be considered as included in the definition “a printed form of receipt.”

EXCLUSIONS.

We now come to the Conditions dealing with Exclusions. As in the various sets of Conditions we are examining there are great divergences in the matter of setting out these exclusions and in the splitting up into articles, comparison item by item is not possible, so I propose to deal with these class by class, independently of the placing of the phrases in the respective articles.

Exclusions are of two classes—(1) Property and (2) Causes. Dealing with the first, viz., *Property* excluded from the policy, we find this sub-divided into two sections, viz. :—

- (A) Property which is not covered.
- (B) Property which is not covered unless specially mentioned.

Broadly speaking, under (A) the Companies seek to exclude from the indemnity such things as money and documents which are not in themselves valuable, but are only evidence of value existing elsewhere—such as cheques, bills, securities, books

of account; and under (B) goods in trust or on commission, and articles which may give rise to an unexpectedly large claim for a single article, such as curiosities, paintings, models, plans.

Without these Conditions the various classes of property mentioned would be included in the scope of the indemnity, and it is self-evident that there is necessity for the Companies to seek the protection which these clauses afford in order, as regards (A), to prevent themselves being called upon to pay, for instance, for banknotes to the enrichment of the Bank, and under (B) in order that, if these classes of property are insured, the Company may have full cognisance of the fact, and may protect itself as it sees fit by the introduction of special limitations or provisions in the manuscript portion of the policy.

Dealing first with (A) Property not covered, I find the following in the old policy of 1816, not amongst the Conditions, but appearing as a memorandum to the table of rates printed on the policy, and consequently having the force of a Condition:—

“ N.B. Gunpowder and Buildings in which it is made
 “ cannot be insured on any terms, neither does this
 “ Office insure writings of any kind, Books of
 “ Accompts, Ready Money, Bonds, Bills, or any other
 “ securities for money.”

In the “ Principles ” of the F.O.C. the only articles absolutely to be excluded are Money and Securities, and in the Uniform Foreign Conditions there is no property to be absolutely excluded. In the policies in use in the Home field, few Companies have yet got down to the minimum prescribed by the F.O.C. “ Principles,” as generally Deeds, Books of Account, Explosives, and sometimes Stamps are absolutely excluded. It will thus be seen that in principle the earlier Home clause is identical with that of to-day. The dropping of any reference to buildings in which gunpowder is made is probably accounted for by the fact that Companies who do not wish to cover such risks will take good care not to have any such on their books, but I may say this same form of clause still exists in French and other Continental policies. There is a striking difference when we come to compare the modern Home Conditions with the Foreign in so far as these latter indicate the

possibility of the Companies being willing to insure money and securities. I say "possibility," because in actual practice I am not aware that there is any great development in this direction, and I have only seen one policy of this sort issued covering gold dollars in a safe. Now that the door is left ajar, however, there will no doubt be a certain demand for cover of this kind, but I think one can safely predict that Companies will be very chary of venturing into such dangerous paths. Gold dollars in a safe need not necessarily be more uninsurable than gold rings, but coins and bank notes, which are only tokens, are open to much more serious objections.

Turning now to (B) Property which is not insured unless specially mentioned, I find in our early Conditions "Houses, Buildings, and Goods in Trust, and Merchandise on Commission, (except as aforesaid), may be insured, provided the same are declared in the Policy to be in Trust or on Commission, but not otherwise." In the F.O.C. "Home Principles" we find only stamps, documents, manuscripts, and books of account.

In the U.P.C. (Foreign) we find—

- (A) Goods held in trust or on commission.
- (B) Bullion or unset precious stones.
- (C) Any curiosity or work of art for an amount exceeding £20.
- (D) Manuscripts, Plans, Drawings or Designs, Patterns, Models, or Moulds.
- (E) Securities, etc., above referred to.
- (G) Explosives.

In Home Policies the wording of Conditions varies a great deal. I need not tire you by reading long Conditions—in principle they are like the Foreign, with some exceptions to which I will refer. There is no great evidence as yet of a tendency to get down to the irreducible minimum of the F.O.C. "Principles."

Comparing the new with the old again we find little practical difference, except that the modern wordings are more elaborate and include such things as manuscripts, plans, and patterns, which experience has shown require special precautionary measures. We no longer speak of houses and buildings in trust, nor do we think it necessary to specify that even when goods in trust or on commission are covered, articles excluded by other Conditions are not to be comprised, which I take to be

the meaning of the words “(except as aforesaid)” appearing in the old Condition.

Dealing with goods in trust or on commission, I think the absence of any mention of these from the “Home Principles” is worthy of comment. The exclusion of such goods, unless specially mentioned, dates from the earliest period of Insurance on Contents, and although it is still retained in all policies, with, so far as I know, only one exception, its being set aside as non-essential at this date after being in continuous use for close upon 200 years is worthy of comment. At its origin the clause seems to have been a concession, if we are to judge from the following notice appearing on proposals dated 1721 :—

“ By this Corporation all persons may fully assure the
 “ value of their houses, effects, etc., which before
 “ could not be done ; all Merchants and Factors who
 “ have goods on Commission may assure for and
 “ prevent the Ruin of their Correspondents ; Heads of
 “ Colleges, Halls, Companys, and all persons in Trust
 “ may assure Buildings, Goods, etc., which before
 “ none such could do, because the Offices heretofore
 “ subsisting, in case of Loss, required an affidavit that
 “ such Buildings, Goods, etc., were the actual pro-
 “ perty of the Assured.”

The omission of any reference to goods in trust, etc., in the “Home Principles” may be due to the fact that Offices invariably include, when desired, goods for which the Insured is responsible, and to a certain degree it is needless to exclude by the Conditions merely to include by the policy. The present position, however, is now so fairly well understood by Offices and the public that I expect Companies will hesitate to make any change in view of established customs ; but if the Condition were made to exclude only “ Goods in Trust or on commission for which the Insured is not responsible,” it might avoid the necessity for any special reference in the body of the policy. In various Foreign countries the effect of this clause is obtained by stipulating that the Insured must declare in what capacity he insures.

Another class of exclusions which is fast disappearing from policy conditions, and which, although still retained by many Offices, is not in the “Home Principles” nor the Foreign Uniform Conditions, is that which refers to such things as china, glass,

looking-glasses, jewels, clocks, instruments, and it is difficult to conjecture what practical benefit ever arose from the exclusion of such articles. It caused a considerable amount of unnecessary detail in the wording of policies, and could never be applied without causing manifest injustice.

I would direct your attention also to a useful innovation in the U.P.C. (Foreign) as regards curiosities or works of art, which need now only be specially mentioned when it is desired to cover any one for an amount exceeding £20. There is really no advantage to the Company in having such articles specified unless they are of large value, and the wording of the Condition achieves that object without necessitating useless detail.

Turning now to the second of the classes into which I have divided the exclusions, viz. :—

EXCLUDED CAUSES,

we again find the same sub-division as in the case of excluded property, viz. :—

- (A) Exclusion unless specially mentioned.
- (B) Absolute exclusion.

Neither in the earlier set of Conditions we are examining, nor in the “Home Principles” (except in respect of spontaneous combustion of coals), nor in modern Home Policies, are there any exclusions under category (A), but in the U.P.C. (Foreign) we find the following :—

“6. Unless otherwise expressly stated in the Policy, the
“Insurance does not cover—

“ (F) Coal, against loss or damage occasioned by its
“ own spontaneous combustion.

“ (H) Loss or damage occasioned by explosion ; but loss
“ or damage by explosion of gas used for illumin-
“ ating or domestic purposes in a building in
“ which gas is not generated, and which does not
“ form part of any gas works, will be deemed to be
“ loss by fire within the meaning of this policy.

“ (I) Loss or damage occasioned by or happening
“ through the burning of forests, bush, prairie,
“ pampas, or jungle, and the clearing of lands by
“ fire.”

The reference to coal is an exception to the absolute exclusion of spontaneous combustion, to which reference will be made later.

No reference is made to explosion in early Conditions, and the "Home Principles" are silent in respect thereof, but in Home Policies the exclusion is made absolute, with a reservation as to gas explosion. Explosion is included in the facultative category in the Foreign Conditions, because in some countries abroad explosion of steam boilers is occasionally included in Fire Policies. I take it the intention of the explosion clause is to exclude only damage due to the actual shock of an explosion; that fire damage following explosion is included, and the absence of the words "in consequence of" would bear out this interpretation. In a theoretical way the exclusion is unnecessary, as damage by explosion is not fire damage, and would not under any circumstances be included; but the relation between explosions and fire is so close that prudence dictates the necessity for removing any doubt.

The proviso as to gas explosions is not exactly in the nature of a Condition—it is rather an extension of the policy to include something more than the loss or damage by fire which is covered by the original contract. There is no particular principle involved, and I will not comment thereon further than to point out a curious ambiguity in the wording of the clause in many Companies' Policies, and also in the wording of the U.P.C. (Foreign). The following may be taken as illustrating the point I wish to make:—

"But loss or damage to property occasioned by explosion
"of coal gas in any building not forming part of any
"gas works will be deemed to be loss by fire," etc.

I think the intention of this clause is to exclude the case where the explosion takes place in a gas works, but it can equally well be read, and no doubt would be held by the Courts to read, loss or damage in any building not forming part of any gas works, occasioned by explosion of coal gas, which would mean that the Company would be responsible for damage done outside the gas works by an explosion taking place in the latter. The changes are rung a good deal upon the word gas. We find sometimes gas alone, and this at one time was held by the Courts to mean coal gas, but I fear to-day that would no longer hold;

sometimes gas used for domestic purposes, which does not fit mercantile and manufacturing premises; and sometimes gas used for illuminating purposes, which is probably best of all, except that it would include the explosion of oxygen used for lime-light views—not likely, however, to cause damage of a serious nature to property.

The final exclusion of the category we are considering—the burning of property by bush and such-like fires—is, of course, evidently destined for Foreign Policies only. I do not think that any great benefit is to be derived from its insertion, and there is much to be said in favour of the plea that Insured are reasonably entitled to compensation for fires arising in this way, and in Australia and North America, where such fires are most frequently met with, the clause is not in use.

The second category of excluded causes, viz., those absolutely excluded, brings me to the point of those clauses which, in the Foreign field at anyrate, have been most prominently in the mind of the Companies and of the public during the past two years. I expect that those who will have the honour of lecturing on Policy Conditions some few years hence will find in this respect ample material for discussion which is not yet ripe for comment. In the 1816 Condition we find the following exclusions:—"No loss or damage will be paid on fire happening by an invasion, Foreign enemy, civil commotion, or any military or usurped power whatever." The "Home Principles" provide

"The exclusion of loss or damage occasioned by or happening through riot, civil commotion, foreign enemy, or military or usurped power, earthquakes, and spontaneous fermentation or heating.

"As regards the spontaneous heating of coal, the Company may cover loss or damage arising from this cause by special provision on the face of the Policy."

The modern Home Policies contain clauses much on the lines of the above, the list of excepted events being more or less elaborated with a view to making the armour-plating more impervious to attack and rendering the clause as far as possible "ironclad." Home Conditions also mention earthquake, hurricane, volcano, and subterranean fires—the two latter seldom. There is also a very general provision for excluding loss or damage to property whilst undergoing any process of drying, and a very few Offices also include loss by theft.

In the U.P.C. (Foreign) we find the following:—

“ 4. The Insurance does not under any circumstances
“ cover

“ (A) Loss by theft during or after the occurrence of a
“ fire.

“ (B) Loss or damage to property occasioned by its own
“ fermentation or natural heating (except as may
“ be provided in accordance with Condition 6F), or
“ by its undergoing any heating or drying process.

“ (c) Loss or damage occasioned by or happening
“ through

“ (1) The burning of property by order of any
“ public authority.

“ (2) The fall of any building or part thereof
“ except as the result of fire.

“ 5. The Insurance does not cover loss or damage by fire
“ during (unless it be proved by the Insured that the
“ loss or damage was not occasioned thereby), or in
“ consequence of

“ (A) Subterranean fire, earthquake, hurricane, vol-
“ canic eruption, or other convulsion of nature.

“ (B) Invasion, act of foreign enemy, riot, civil com-
“ motion, rebellion, insurrection, military or
“ usurped power, or martial law.”

In regard to spontaneous combustion, in the U.P.C. the principle is maintained that only the property in which the spontaneous combustion took place is excluded by the introduction of the words “ its own.” In Home Policies this same effect is produced by varying forms of wording, such as “ the spontaneous fermentation or heating of the subject insured.” In the “ Home Principles ” all qualifying phrases are left out, and “ spontaneous fermentation or heating ” is left to stand or fall by itself. I take it that the underlying thought is that unadorned the phrase would be interpreted by the Courts just in the same way as if it were qualified—that is to say, that damage to property would not be excluded if caused by fire arising spontaneously in other property. I need not emphasise to an audience of Insurance experts the difficulty of applying this Condition. A fire originating in this way practically always “ covers its tracks ” by burning all evidence of its start, and even if the origin can be traced the saving

effected by the non-payment for the particular goods where the fire originated is likely to be small. Now that spontaneous combustion of coal is freely covered, the chief object in retaining the clause seems to be to avoid placing a premium on the careless stacking of hay.

The clause excluding property damaged "whilst undergoing drying by fire heat" becomes in the U.P.C. (Foreign) loss or damage "occasioned by its undergoing any heating or drying process." The difference is noticeable, as the Home clause probably goes further than the compilers really intend, in so far that the contents of a drying stove, for example, are always excluded no matter how the fire originated. In the Foreign Condition it is the *cause*, whereas in the others it is the *property*, which is excluded. The absence of any reference to this point in the "Home Principles" may be taken as indicating that it is not of any great importance, and its retention, I should say, is due to the Companies desiring to avoid a number of troublesome little fires, which can be left unpaid without causing any hardship on the Insured.

The exclusion of loss or damage arising through disturbances in the social regime is common to all the Conditions we are examining, and the intention of all is alike, and the actual events specifically mentioned are identical, except that in the "Home Principles" invasion is left out—probably on the plea that such is included in the term "Foreign enemy," and the Foreign Conditions refer to rebellion and insurrection and martial law, which are more likely to occur in the Foreign Field than at Home, or for which it may be thought that "military or usurped power" affords sufficient protection. There are somewhat more important differences in the qualifying phrase, which in the old Condition reads "happening by" and in the modern Home Conditions is amplified to read "occasioned by or happening through," an attempt to extend the exclusion to losses arising indirectly through the events specified. The Foreign Condition introduces a new and, to my mind, extremely important departure in excluding all losses arising during the events; but, as it would be an unduly harsh provision, for example, to penalise a whole town because of a riot in a part of it, the mollifying parenthesis is added "(unless it be proved that the loss or damage was not occasioned thereby)."

There can be no doubt as to the practical benefit which the Companies obtain—or aim at obtaining, which is by no means the same thing—from this exclusion, and although great pressure has been brought to bear upon the Offices at times to delete the reference to riot and civil commotion (notably, and for obvious reasons, in Ireland), there has been no slackening in this direction.

There was a strong disposition on the part of some Offices in England some 16 years ago to undertake the risk of loss through riot, depending on the provisions of the Riot (Dámages) Act to secure reimbursement from the authorities, but Counsel's opinion sought at the time showed that there were grave doubts whether the Company would have an independent right of claim or whether it stood on the same footing as the Insured, in which case its right to recover would depend on the conduct of the Insured and his complying or enabling the Company to comply with the regulations. And as the Company could not control these matters, and for other reasons, the Offices finally resolved not to permit the acceptance of this risk. At the same period it was considered whether the Companies could not undertake to advance to Insured the amount of loss sustained until he could recover from the authorities, but neither was this mode of procedure agreed to. Abroad it has been urged that Offices might readily undertake for an extra premium the reimbursement of such losses if no indemnity could be obtained from the authorities, but, apart from all other reasons, I fear that the enormous selection against the Offices which would arise from Insured only seeking this additional cover when there are clouds on the political or social horizon would render any such scheme impracticable.

I turn now to the other class of excluded causes, viz., upheavals in the physical conditions. In the "Home Principles" we find "earthquake" due probably to the influences of the moment. In most Home Conditions we find generally earthquake and hurricane, and sometimes subterranean fire, whilst in the Foreign Conditions we find all these and "volcanic eruption or other convulsion of nature." It would be interesting to know what gave rise to the adoption of the earthquake exclusion somewhere between 1820 and 1840. There were no catastrophes of this nature about that period,

and the one outstanding event of the past, the destruction of Lisbon in 1755, must have been as well known to the earlier underwriters as to the later. Had I not the example of so great an authority as Walford I should hesitate to put forward the theory advanced by him in his *Encyclopædia*, to the effect that it was inserted to combat the plea that earthquakes being caused by fire—subterranean fire—a house thrown down by earthquake was destroyed by fire. *Tempore mores mutantur.*

We know another reason for earthquake clauses to-day.

I may say that, although subterranean fire appears in the Foreign Conditions in company with earthquakes and other convulsions of nature, the intention is not to refer to an outburst of the fire in the earth's centre—not a "leak from "Hades," as I have heard it expressed, but the much less terrible fire arising through the smouldering of combustible rubbish in made ground, which has caused some destruction chiefly in the Potteries district in England.

In connection with this clause I should like to refer to two cases which have come under my notice, and which illustrate forcibly the possibilities of interpreting one clause by reading it in juxta-position with another. Something of this was seen in the famous "King and Queen Granary" case, where the obvious meaning of the word "property" in one clause was used to justify the same meaning being given to it in another. In one of the cases heard before the American Courts in connection with San Francisco the clause read—I give only the essential part—"Directly or indirectly through invasion, etc., nor by or through earthquakes." The Court held that, as in the first part the Company said "indirectly," it must have meant to bar "indirectly" in the second part, seeing it made no reference thereto, and therefore it lost the advantage of the exclusion of loss caused indirectly, which the words "by or through" taken alone might have excluded. In the other case a Company was sued for fire caused by volcanic eruption, although its Conditions excluded loss or damage occasioned by or through volcanoes, the plea being that as in policies in use in other countries the same Company excluded loss or damage *by fire* occasioned by or through volcanoes, it must have had a reason for omitting the words *by fire* in the policy sued upon, and that reason could only be that it meant in the latter case to exclude only loss or damage other

than fire. Although this contention may seem absurd, the Insured was so convinced of its soundness that he did not hesitate to carry the adverse decision of the initial Courts through two successive Courts of Appeal, losing in them all.

Although there is no obvious difference in the wording of the initial clauses of Conditions 4 and 5 of the U.P.C., I would not venture to say that it is beyond the skill of an opposing lawyer to find for his own purposes an essential difference between "the Insurance does not under any circumstances cover" and "the Insurance does not cover," although I take it the real reason for the difference is to emphasise the distinction between exclusions which the Offices are at liberty to waive and those which must not be waived.

It is now a matter of common knowledge that loss or damage by earthquake has, by a recent decision of the F.O.C., been removed from the category of "must nots" to the category of "mays."

A further excluded cause in Foreign Conditions is theft during or after a fire. This exclusion appears in one or two Home Conditions also. Theoretically the exclusion would seem needless, as loss by theft is not loss by fire, and would not be included in the scope of the Policy, but Courts—American—have held otherwise.

An exclusion peculiar to the Foreign Conditions and of quite modern origin reads:—

"The Insurance does not under any circumstances cover
"loss or damage occasioned by or happening through
"(1) the burning of property by order of any public
"authority."

I would emphasise particularly the words "burning of property," which constitute the main departure in this clause from former clauses I have seen, and which read "the destruction of property by order of any public authority." The latter form of clause was intended to provide for the case of property pulled down or blown up, generally to arrest the spreading of a conflagration, but the new clause, by confining its effects to cases of burning alone, leaves the question of such pulled-down or blown-up buildings untouched. I believe any reference to such is left out purposely, as, whatever may be the value in theory of the argument that damage of this kind is not damage by fire, and consequently is without the scope of the policy, in actual practice Companies generally pay the loss, and some Foreign Policies actually stipulate that the Com-

pany will pay therefor. The introduction of "burning" is due to a particular case which arose in Honolulu, where the American authorities, in pursuance of a sanitary campaign, set fire to a particular section of the town which was so unhealthy as to be beyond any hope of successful cleaning up. The fire thus started got beyond control, and destroyed much valuable property which was not scheduled for destruction, and for this many Companies had to pay. The case was unique, and no Condition of the policies exactly fitted, and so, as the Offices felt that such a loss, which in the absence of Insurance would undoubtedly have fallen on the authorities, should not have been borne by them, this clause has been adopted in order to provide for the contingency occurring again. The case, as I have said, was a unique one and is very unlikely to happen in the future, so that the Condition is not likely to be of much practical use.

The final exclusion which we have come to consider is, I believe, entirely confined to Foreign Policies, as I have no knowledge of its being used in England. The exclusion reads—"Loss or damage occasioned by or happening through the fall of any building or part thereof except as the result of fire." This clause departs considerably from the American clause, on which it is presumably based, the wording of the latter being "If a building or any part thereof shall fall, except as a result of fire, all Insurance by this Company on it, or on its contents, shall immediately cease and determine," the chief defect of which proved to be that, according to the view of the Courts, it only operated when a very material part of a building fell.

PAYMENT OF PREMIUMS.

Condition No. 4 in the 1816 set of Conditions reads:—

"On bespeaking Policies all Persons shall pay the
"Premium to the next Quarter-Day, and from
"thence for One Year more at least, or shall make a
"Deposit for the same, and shall, as long as the
"Managers agree to accept the same, make all future
"Payments annually at the said Office, within
"Fifteen Days after the Day limited by their respec-
"tive Policies, upon Forfeiture of the Benefit
"thereof."

This Condition is to a large extent dropped in modern Conditions. A modern equivalent of the opening phrase is

still found in a few policies in the form “ No insurance shall be in force until the premium or a deposit on account thereof shall have been actually paid,” but the general tendency is to omit any such stipulation as being of no practical value. The proviso which stipulates for acceptance of payment by the Company nowadays finds the place which its importance warrants in the policy itself. The reference to days of grace is also a dead letter so far as modern policies go, these being more properly conceded as an act of grace by the Renewal Notice instead of being conferred as a right by the Policy Conditions. In the Foreign field, with a few exceptions, no days of grace are allowed.

DECLARATION OF CO-INSURANCE.

I now come to the declaration of co-insurance. This clause has been pretty generally dropped in Home business, but is still maintained as an essential feature in all Foreign Conditions. In the Uniform Conditions it reads:—

“ 3. The Insured shall give notice to the Company of any
 “ Insurance or Insurances already effected, or which
 “ may subsequently be effected, covering any of the
 “ property hereby insured, and unless such notice be
 “ given and the particulars of such Insurance or
 “ Insurances be stated in or endorsed on this Policy
 “ by or on behalf of the Company before the occur-
 “ rence of any loss or damage, the Insured shall not
 “ be entitled to any benefit under this Policy.”

I may say that this clause is generally upheld by Law Courts, as it is admitted that it is a reasonable precaution on the part of the insuring Company to acquaint itself with the total insurance existing on the property. It is, however, held that the word “ property ” must be read in a restrictive sense, and limited to “ the same interest in the property.”

CHANGE OF INTEREST.

A provision appears in both Home and Foreign Policies, although no mention thereof appears in the “ Home Principles.”

The following may be taken as a representative Home clause:—

“ This policy ceases to be in force as to any property
 “ hereby insured which shall pass from the Insured

“ to any other person otherwise than by will or operation of law, unless notice thereof be given to the Company and the subsistence of the insurance in favour of such other person be declared by a memorandum endorsed hereon by or on behalf of the Company.”

The Foreign U.P.C. reads:—

“ 8. Under any of the following circumstances the Insurance ceases to attach as regards the property affected unless the Insured, before the occurrence of any loss or damage, obtains the sanction of the Company, signified by endorsement upon the Policy, by or on behalf of the Company.

“ (A)

“ (B)

“ (C)

“ (D) If the interest in the property insured pass from the Insured otherwise than by will or operation of law.”

It is questionable if the clause serves any better purpose than calling the attention of the Insured to the necessity for declaring to the Company changes of interest, as it is unlikely that a claim would be sustainable by an Insured who had no longer an interest or by a third party who had no contract. You will observe that in the Home Condition I have read, the Conditions refer to “any property which shall pass,” whereas the Foreign Condition has the more correct expression “ if the interest in the property insured shall pass,” and I may say that a number of Home Conditions are drawn similarly to the Foreign clause in this respect.

The first Fire Insurance law suit of which a record exists bears upon this clause—in 1729 it was decided that assignment of a policy after sale without the consent of the Company was invalid.

MARINE CLAUSE.

I should like here to refer to Condition No. 7 of the U.P.C., the Marine clause reading :—

“ 7. The Insurance does not cover any loss or damage to property which, at the time of the happening of such loss or damage, is insured by, or would, but for the existence of this Policy, be insured by any

“ Marine Policy or Policies except in respect of any
 “ excess beyond the amount which would have been
 “ payable under the Marine Policy or Policies had this
 “ Insurance not been effected.”

This only exists in the Home forms of one or two Companies, although it is frequently incorporated in the body of Home Policies.

The clause is essentially modern, and is, of course, intended to make Marine underwriters first responsible for any loss sustained by goods during any period to which the Marine Policy has been extended.

I find that in 1875 a case was tried in which a Fire Insurance Company unsuccessfully attempted to throw upon Marine underwriters a loss on wool in Sydney, and I fancy from this the idea of this clause must have sprung. The Marine underwriters, alive to their own interests, retorted by introducing a Fire clause, the counterpart of our Marine clause, into their policies, and for many years the ingenuity of the Fire Companies has been pitted against that of the Marine underwriters in an attempt to shift the burden on to one another's shoulders. A wordy strife has been carried on over the body of the Insured, and to such a state of perfection have both sides arrived with their respective clauses that, if both sets of policies have the most up-to-date clause, both would apparently have successfully cast off the burden.

CANCELMENT.

Another Condition which finds its place in the Foreign Conditions is that which provides for the cancelment of the policy during its currency, and reads as follows:—

“ 9. The Insurance may be terminated at any time at the
 “ request of the Insured, in which case the Company
 “ will retain the customary short-period rate for the
 “ time the Policy has been in force. The Insurance may
 “ also at any time be terminated at the option of the
 “ Company, on notice to that effect being given to
 “ the Insured, in which case the Company shall be
 “ liable to repay on demand a rateable proportion of
 “ the premium for the unexpired term from the date
 “ of the cancelment.”

This clause, with, so far as I know, only one exception, is not in use in Home policies. It has for long, however, been in

use in the Foreign field, and, although seldom put into force, it is a valuable provision in fields where untoward and unforeseen circumstances may arise necessitating prompt action.

The first part of the clause conferring on the Insured the right to cancel on payment of short-period rates is new, and merely confers as a right what has always been conceded as an act of grace. In the part of the clause which confers the right of cancelment on the Company no notice is stipulated for, but, as a matter of fact, it would probably be held that reasonable notice must be given in order to allow the Insured time to cover himself elsewhere.

LOSS ADJUSTMENTS.

The Conditions which next fall to be examined are those dealing with loss adjustments, and, as these are somewhat long, and the various sets of Conditions do not coincide in the matter of order, I shall not read them entirely through, but will make my comparison and comments point by point.

The stipulation that notice must be given forthwith is Notice of Fire. practically identical in all Conditions. The only differences are that the "Home Principles" use the word "immediate," but that conveys no different meaning to "forthwith," and the modern clauses stipulate for the notice being *in writing*.

The 1816 Condition uses the vague expression "as soon as Delivery of Claim. possible afterwards," whereas in the modern Conditions a specified time is mentioned—in the "Home Principles" and in the most modern policies 30 days, and in the Foreign Conditions 15 days. There is, however, added in modern clauses "or such further time as the Company may allow." It has been argued that the addition of these latter words is needless, as it would be always open to the Company to make the concession if it liked without them, and their presence confers on the Insured no right to any extension. I believe they are inserted merely to remove any appearance of harshness. It is doubtful whether the limitations place any real disadvantage on the Insured, as it is probable, I think, that the Courts would hold that even without the clause there is an implied obligation to lodge his claim within a reasonable time.

The 1816 form is very simple—

Form of Claim.

"As particular an account of their loss or damage as the
"nature of the case will admit of."

The "Home Principles" are equally concise—

"A claim in writing with such detailed particulars . . .
"as may be reasonably required."

The Foreign Clause is somewhat more elaborate—

"A claim in writing for the loss and damage containing as
"particular an account as is reasonably practicable
"of all the articles or items of property damaged or
"destroyed, and of the amount of the loss or damage
"thereto respectively."

The Conditions appearing in Home Policies vary very much in wording, and some of them contain most elaborate details as to the particulars to be supplied, and almost warrant the terms used by a Canadian Judge in one case when he characterised the Condition as calculated to give the Assured 12 months' hard work—three months being the limit allowed. No essential difference in principle is contained in these as compared with the more concise forms, and it is probable that Offices generally will tend to reduce the wording of this phrase to the simplicity of the wording of the "Home Principles." One Company has already adopted the following:—

"A statement in writing with all particulars and details
"reasonably practicable of the property affected and
"the value thereof, and of the loss or damage."

These clauses find their chief value as an intimation to the Insured as to what he must do. It confers no advantage on the Company, as it would under any circumstances be entitled to such information as is reasonably practicable.

Proofs of Claim
required.

In the 1816 Conditions these again are very short:—

"Proof of the same by their oath or affirmation, accord-
"ing to the form practised in the said Office, and by
"their Books of Accompts or such other proper
"vouchers as shall be reasonably required,"

together with the old-fashioned requirement, now entirely obsolete, of—

"A Certificate under the hands of the Minister and
"Churchwardens and some other respectable Inhabi-
"tants of the Parish or Place"

The "Home Principles" are very concise—

"Such proof of the loss or damage as may be reasonably
"required."

The Foreign Condition requires—

“All such books, vouchers, and other evidence as may be
“reasonably required by or on behalf of the Com-
“pany, together with a declaration on oath or in
“other legal form of the truth of the claim and of
“any matters connected therewith.”

In this respect also Home Conditions vary very much in wording, and contain, as a rule, very prolix details as to the possible requirements in the way of proof, but without any serious divergence in principle from the more concise clause quoted. The most recent Conditions tend to revert to the simplicity of the old form, as in the following example:—

“All such vouchers, proofs, explanations, and other
“evidence as may be reasonably required by the
“Company, together with a statutory declaration if
“required, in verification of the statement.”

It is curious to note that the furnishing of a declaration is made compulsory in all cases in the Foreign Conditions as in the old Home form, but in practice this formality is not generally insisted upon.

Most Conditions also provide that if the insurance is subject to Average, full particulars of all the property insured, or, as the Foreign Conditions state it, “an account of all the property insured, with the estimated value thereof at the breaking out of the fire,” must be furnished, for the obvious purpose of determining whether or not there is a full insurance, and, if not, what proportion of loss the Company must bear.

Common Law would necessitate the Insured furnishing these proofs. Porter, in his “Laws of Insurance,” says:—

“Vouchers, proofs, and explanations are required as
“much by good faith as by the Conditions, and a
“man who would not show his accounts would have
“as little chance of recovering under Common Law
“as under an ordinary Policy.”

Most Conditions introduce, what I might call a penalty clause, in respect of non-production of proofs of loss. The form of these is worthy of notice. Many Offices in the Home field use the wording:—

“No claim . . . shall be substantiated unless and
“until such notice, etc., shall have been delivered,”

but it has been held that such wording has only a suspensory effect. The Uniform Foreign Clause makes the penalty quite clear by stipulating that—

“No amount shall be payable under this Policy *unless* the terms of this Condition have been complied with.”

I think that under that Clause there is no doubt but that failure to produce proofs within the stipulated or extended time will be an effective bar to any claim.

One feature connected with this Condition which I would like to emphasise is its easily-waivable nature, a point which, I fear, we are apt to lose sight of. Bunyan cites “the retention by the Office for a long time, without objection, of proofs of loss,” “absolute denial of liability,” and “independent investigation,” as constituting waivers of the Condition, and Porter further mentions that “waiver may be inferred from the acts and conduct of the Insurer inconsistent with an intention to insist on the strict performance of the Condition.” In actual practice I have seen cases where unintentional waivers of this kind have had disastrous results in after procedure.

FRAUD.

A Condition providing that fraud or wilful fire-raising will void the policy appears in all policies. I do not read the wordings, as, though varying in language, there is no essential difference. Without this clause Common Law would probably protect the Company against fraud, and certainly would against wilful fire-raising by the Insured, and assuredly no Insured could object to the presence of this Condition in his contract. Arson is one of the most difficult of all defences to a fire claim. It touches on Criminal Law, and Companies are loth to venture into such matters. The distinction between a fraudulent claim and one where the Insured is merely “putting it on” in order to get as full a settlement as possible, as Porter puts it, is so difficult to establish that seldom do the Offices take such a plea into Court. In France they have a rough-and-ready rule to the effect that they will never plead fraud in respect of price but only in respect of quantities.

RIGHT OF ENTRY.

The clause known as "the right-of-entry clause" does not appear in the early Conditions. It originated, so far as I can discover, shortly after 1866 following on a case in the Lord Mayor's Court, where the Judge and Counsel employed seemed to have thought that the Insurers had no right to enter upon the premises (Bunyan). The clause at its origin was not materially different from the following clause in use in a Home policy to-day:—

"On the happening of any damage by Fire to any
"Building or Place, or Property or Effects within
"any Building or Place in respect of which a Claim
"is, or may be, made under this Policy, the Com-
"pany, without being deemed wrong-doers, may, by
"their authorised Officers and Servants or others, enter
"into and for a reasonable time remain in possession
"of such Building or Place, Property or Effects, for
"all reasonable purposes relating to, or in connection
"with, the Insurance hereby effected, and this
"Policy shall be evidence of leave and license and
"authority for that purpose. Any obstruction or
"interference by the Insured shall void the Policy."

The majority of Home Conditions are much more elaborate than this, and the Uniform Foreign clause may be taken as embodying all the details contained in the more elaborate Home clauses. It is as follows:—

- "11. On the happening of any loss or damage the Com-
"pany may, so long as the claim is not adjusted,
"(A) Enter and take and keep possession of the
"building or premises where the loss or damage
"has happened.
"(B) Take possession of or require to be delivered
"to it any property of the Insured in the build-
"ing or on the premises at the time of the loss
"or damage.
"(C) Examine, sort, arrange, or remove all or any
"of such property.
"(D) Sell or dispose of, for account of whom it may
"concern, any salvage or other property taken
"possession of or removed without thereby
"incurring any liability."

12. (part only)—

- "If the Insured or anyone acting on his behalf shall
"hinder or obstruct the Company in doing any of the

“acts referred to in Condition 11, all benefit under
“this Policy shall be forfeited.”

There are few recorded law suits bearing on this Condition, and the numerous provisions must be assumed to have been evolved from difficulties which have arisen in practice. One cannot help being struck with the enormous powers which the Company reserves to itself by this Condition. Certainly an Insured would be staggered to find what a Company could do if it cared—say, in the event of a small loss, “take possession of, remove, and sell any property of the Insured on the premises.”

There is some doubt as to what would be the rights of the Company in the absence of a clause such as this. Bunyan thinks the Judges were in error in the case I have mentioned as having given rise to the Condition, and that the right to enter would seem to follow from the nature of the contract; and the absence of any reference to this clause in the “Home Principles” would seem to suggest that there is no imperative necessity for its insertion. It is improbable that any greater advantage is derived from the elaborate detailed powers mentioned in the Foreign Condition than in the shorter Home Condition I have read, as no matter how the phraseology of the clause may be strengthened the Company must always be limited to such acts as it may reasonably do in process of adjustment of a claim, and would always be open to an action for damages if it proceeded to any arbitrary acts unnecessarily injurious to the Insured.

PREScription.

The Foreign Conditions embody a further phrase to the effect that if an action be not raised within three months of the rejection of a claim or of the issue of the Arbitrator's award all benefit under the policy shall be forfeited. I fear the compilers of this clause have gone further than they intended, as it can hardly be the purpose of this clause to prevent an Insured claiming for a second fire occurring during the currency of the policy simply because a first claim shall have been rejected and no action brought. Few Companies have a prescription clause of this sort in Home policies, as evidently the dangers are not thought to be great, but abroad, where statutory delays run up

to 30 years, the clause is essential. I have known a case successfully reopened after 20 years, long after the Company concerned had lost all trace of the evidence which brought about its original rejection of the claim.

ABANDONMENT.

There is considerable variance in the Home policies in respect to an abandonment clause—some inserting it, and some leaving it out altogether. The “Home Principles” are silent on the point, but the following is a sample of the clauses in use:—“The Insured shall not in any case have any right to abandon any property to the Company whether taken possession of by the Company or not.” The law on this subject in England is fairly well established, and the Companies who have not the clause evidently think themselves sufficiently protected thereby. I expect the real object of introducing the Condition is to get the benefit of the latter part of it, which aims at preventing the possibility of it being held that taking possession of the premises by the Company implies the right of the Insured to abandon the salvage.

The Foreign Condition is somewhat more elaborate, although the effect is identical. It runs:—

“In no case shall the Company be obliged to undertake
“the sale or disposal of damaged goods, nor shall the
“Insured under any circumstances have the right to
“abandon to the Company any property, damaged or
“undamaged, whether taken possession of by the
“Company or not. Entry upon, or taking possession
“of premises by the Company shall not be taken as
“recognition of abandonment by the Insured.”

Whatever may be the protection afforded by the law, I think this is a most useful provision so far as the Foreign field is concerned. The selling of salvage by auction as the most convenient method of arriving at a settlement is so often adopted, and the principle of abandonment being to a certain extent recognised in Marine insurance, with which many Foreign Insured are familiar, there is a tendency to look upon abandonment as a right, and it is very desirable that the policy should contain a clear and unmistakable enactment on the point.

REINSTATEMENT.

The next clause to which I would refer is the Reinstatement Clause. This clause has the honour of being the only one of our Policy Conditions which is the subject of statutory enactment. By an Act of George III. still in force it is decreed :—

“ And for the better preventing mischiefs that may happen
 “ by fire, and to deter and hinder ill-minded persons
 “ from wilfully setting their house or houses, or other
 “ buildings, on fire, with a view of gaining to them-
 “ selves the insurance money, whereby the lives and
 “ fortunes of many families are lost: Be it further
 “ enacted, . . . That it shall and may be lawful
 “ to and for the respective governors or directors of
 “ the several insurance offices within the cities of
 “ London and Westminster for insuring houses and
 “ other buildings against loss by fire, and they are
 “ hereby authorised and required, upon the applica-
 “ tion and request of any person or persons interested
 “ in or entitled unto any house or houses or other
 “ buildings, within the limits by this Act prescribed,
 “ which hereafter shall or may be burnt down,
 “ demolished, or damnified by fire; or upon any
 “ grounds of suspicion that the owner or owners,
 “ occupier or occupiers, or other person or persons
 “ who shall have insured such house or houses or
 “ other buildings, have been guilty of fraud, or of
 “ wilfully setting their house or houses or other
 “ buildings on fire; to cause the insurance money to
 “ be laid out and expended, as far as the same will
 “ go, towards rebuilding, reinstating, or repairing
 “ such house or houses, or other buildings, so burnt
 “ down, demolished, or damnified by fire; unless the
 “ party or parties claiming such insurance money
 “ shall, within 60 days next after such claim shall be
 “ adjusted, give a sufficient security to the governors
 “ or directors where such house or houses or other
 “ buildings are insured, that the same insurance
 “ money shall be so laid out and expended as afore-
 “ said; or unless the said insurance money shall be in
 “ that time settled and disposed of to and amongst
 “ all the contending parties, to the satisfaction and
 “ approbation of such governors or directors of such
 “ insurance offices respectively.”

It is perhaps not generally known that, although the statute is in many respects practically a dead letter, it is still

obligatory upon Offices, in suspicious cases, to see that the money paid is expended in the reinstatement, and the opinion is held in some quarters that Offices are bound to hold building indemnities over for 60 days in order to give any interested parties time to lodge a request for reinstatement if they so desire. So recently as 1902 this statute was invoked in a case where an attempt was made to force a Company to reinstate, but the Court held that the obligation was not imperative, and I notice it was referred to in a case cited in the *Post Magazine* last week.

Clauses giving the Company power to reinstate date from the earliest days of Fire Insurance, and are practically in universal use.

Numerous law suits and difficulties have arisen in practice demonstrating the many contingencies which reinstatement gives rise to, and consequently Conditions in use have grown to be very lengthy in the endeavour to hedge the Companies round with precautions. The "Home Principles" merely stipulate that the Company must reserve to itself

"The right . . . to make good by reinstatement all
"loss or damage, and, in the case of buildings, should
"this right be exercised, the further right of the
"Company to call upon the Insured to furnish plans,
"specifications, or quantities of the buildings damaged
"or destroyed."

But in general the Conditions actually in use go into much greater detail. The following is the most concise modern clause I have seen, and does not greatly elaborate the "Home Principles" clause.

"The Company may, at their option, reinstate or replace
"the property damaged or destroyed, or any part
"thereof, instead of paying the amount of the loss
"or damage in money, or may join with other
"Insurers in so doing. Reinstatement effected as
"nearly as reasonably practicable to be deemed
"sufficient, notwithstanding that the former appear-
"ance and condition of the property may not be
"precisely restored. If the Company elect to
"reinstate or replace, the Insured shall furnish to
"them when required all such plans, specifications,
"and information as may be deemed necessary or
"expedient for the purpose."

The Uniform Foreign Condition has been modelled on the lines of the prevailing Home Conditions, and contains most of the provisions to be found in these. It is as follows:—

“ 13. The Company may at its option reinstate or replace
 “ the property damaged or destroyed, or any part
 “ thereof, instead of paying the amount of the loss
 “ or damage, or may join with any other Company or
 “ Insurers in so doing, but the Company shall not be
 “ bound to reinstate exactly or completely, but only
 “ as circumstances permit and in reasonably sufficient
 “ manner, and in no case shall the Company be bound
 “ to expend more in reinstatement than it would have
 “ cost to reinstate such property as it was at the time
 “ of the occurrence of such loss or damage, nor more
 “ than the sum insured by the Company thereon.

“ If the Company so elect to reinstate or replace any
 “ property, the Insured shall, at his own expense, furnish
 “ the Company with such plans, specifications,
 “ measurements, quantities, and such other par-
 “ ticulars as the Company may require, and no acts
 “ done, or caused to be done, by the Company with a
 “ view to reinstatement or replacement shall be
 “ deemed an election by the Company to reinstate or
 “ replace.”

“ If in any case the Company shall be unable to re-
 “ instate or repair the property hereby insured, because
 “ of any Municipal or other regulations in force affect-
 “ ing the alignment of streets, or the construction of
 “ buildings, or otherwise, the Company shall, in
 “ every such case, only be liable to pay such sum as
 “ would be requisite to reinstate or repair such pro-
 “ perty if the same could lawfully be reinstated to its
 “ former condition.”

The two points on which it is necessary for the Company to protect itself are:—

First, That it may not be held to have opted for reinstatement before it has really made up its mind to do so, and this is provided for by the words, “ and no acts
 “ done or caused to be done by the Company, with a
 “ view to reinstatement or replacement, shall be
 “ deemed an election by the Company to reinstate or
 “ replace”; and

Second, That, as, when once the Company has elected to reinstate, the nature of the contract is changed, and it would become an absolute undertaking on the part of the Company to reinstate at all costs, it must insert such safeguarding stipulations as that which limits its

liability to "reinstatement as circumstances permit" and "in reasonably sufficient manner," and limiting the amount to be expended to the sum insured.

I have some difficulty in appreciating what is the object in inserting the provision that the Company cannot be held to expend in reinstatement more than the sum insured, as, notwithstanding its insertion, it is hard to believe that a Company would be relieved of its obligation by handing over, say, a roofless house on the plea that the amount insured had been exhausted.

The last clause of the Foreign Condition I have just read does not refer to reinstatement properly so called, but applies to cases where the Company chooses to pay in cash, and is introduced to prevent the Insured claiming the cost of rebuilding his premises if, through alterations in Building Laws, this cost is more than the value of the destroyed buildings. I do not think it confers any real advantage on the Company, as the value of the destroyed building is, I should think, the legal basis of indemnity; but in rising communities, where public authorities are anxious to embellish or to improve the town as prosperity increases, it is often decreed that massive houses must replace inferior ones, or tiled roofs shingled ones, and it is very desirable that this clause should be inserted in order that the Insured may clearly understand what his policy will do for him in such circumstances.

In actual practice the option of reinstatement is not often exercised, and the chief argument in favour of the retention of the clause is that the threat to reinstate is sometimes a valuable factor in bringing an unreasonable claimant to modify his pretensions. This Condition can scarcely be considered as inserted for the information of the Insured, as undoubtedly it is inserted for the advantage of the Company, and aims at securing for it privileges which are in excess of what would devolve upon it by operation of common law or the statute aforesaid.

SUBROGATION.

Condition No. 14 of the Foreign U.P.C. is identical with that appearing in Home Conditions of certain London Offices, and is as follows:—

- “ 14. The Insured shall, at the expense of the Company,
 “ do and concur in doing, and permit to be done, all
 “ such acts and things as may be necessary or reason-
 “ ably required by the Company for the purpose of
 “ enforcing any rights and remedies, or of obtaining
 “ relief or indemnity from other parties to which the
 “ Company shall be or would become entitled or sub-
 “ roigated, upon its paying for or making good any
 “ loss or damage under this Policy, whether such acts
 “ and things shall be or become necessary or required
 “ before or after his indemnification by the
 “ Company.”

You will observe that this clause does not aim at conferring any right by subrogation, but merely imposes upon the Insured the obligation to assist the Company in pursuing any rights it may have by subrogation, through its having paid him an indemnity. Subrogation rights are only occasionally exercised in Fire Insurance practice in England, although in other countries, France notably, questions of subrogation are of daily occurrence, and the exercise of subrogated rights is pursued with the utmost vigour by Insurance Companies. Companies who do not insert the clause probably trust to getting from the Insured at the time of the settlement an undertaking sufficient for their purposes in those cases where any question of subrogation is likely to arise, and this course is found quite sufficient in France, where no such condition is used, although, as I have said, subrogation plays a very large part in loss settlements there.

CONTRIBUTION AND AVERAGE.

The Contribution clause appears in all policies, old and new, Home and Foreign, and does not vary in any great degree. The modern clauses all contain the words, “ whether effected by the Insured or any other person ” or their equivalent, which have been rendered necessary through complications unknown or unappreciated in the earlier days of Insurance. It is quite impossible for me in the remaining time at my disposal to comment upon the many important decisions and interpretations which have arisen out of this clause. I will merely content myself by quoting from Bunyan the following as showing his understanding of the general effect of this clause :—

“ When Insurances are effected in more than one Company, it follows, from the nature of the contract, that the Insured can recover no larger sum than the amount of his loss. If there were no stipulation in the policies on this subject it would be open to him to recover from any one of his Insurers in preference to the others, and it would be no answer to an action against Company A that a similar insurance had been effected with Company B, which ought in equity to pay half the loss. If, however, the claims were paid in full by Company A, it would be entitled to contribution by Company B.”

This I read to mean that the clause only operates to the disadvantage of the Insured when any of his Insurers are insolvent, and, with this sole exception, or if there were greater expense attendant upon recovering from one Company than from another, does not place him in any worse position than he would be in were the clause not in his policy.

The Conditions referring to Average I do not propose to comment on, as no good purpose would be served by any passing comments on so wide a subject. I would merely say that the Average clause is printed as a Condition in most Foreign policies, as it is largely applied abroad, even to specific insurances, the principal countries where this is not the case being North America, Australasia, and the British West Indies.

ARBITRATION.

A familiar clause in all policies is the Arbitration clause. Our predecessors were at no great pains to specify what they meant in the clause in use in 1816, as we find their wording was exceedingly simple. It ran “ and in case any difference shall arise between the Company and the Insured touching any loss or damage, such difference shall be submitted to the judgment and determination of arbitrators indifferently chosen, whose award in writing shall be conclusive and binding on all parties.” Numerous legal decisions, however, have shown that, simple as the clause seems, it was capable of giving rise to many differences of opinion—in fact, this clause, destined to avoid litigation, has itself proved a somewhat fruitful source of lawsuits. The result of this has been that, while meaning nothing more than was intended by the simple clause I have read, the Companies have found it necessary to

hedge their clauses round with specific declarations, strengthening them where adverse decisions have shown weaknesses to exist, and the Condition has become one of the most wordy on the policy.

I do not propose to try your patience by reading any of these very lengthy clauses, but will content myself with quoting the "Home Principle," which lays down certain obligatory stipulations:—

" A provision that in the event of any difference arising
" out of the Policy the Company shall have the right
" to submit such difference to the Arbitration of two
" persons, or one, if the Company and the Insured
" agree; that the Arbitrators thus chosen shall,
" before commencing their investigations, elect an
" Umpire to decide between them in event of dis-
" agreement, and that the obtaining of the Award of
" such Arbitrator or Arbitrators and/or Umpire shall
" be a condition precedent to the commencement of
" legal proceedings."

That this contains all that is necessary in England is shown by the fact that certain Companies have adopted a clause not varying in any very great degree from the lines laid down in this Principle, as

" All differences arising out of this Policy shall be referred
" to the decision of an Arbitrator to be appointed by
" the parties in difference, or, if they cannot agree
" upon a single Arbitrator, to the decision of two
" Arbitrators, one to be appointed in writing by each
" of the parties, or in case of disagreement between
" Arbitrators, to the decision of an Umpire to be
" appointed in writing by the Arbitrators before
" entering on the reference, and unless and until an
" Award has been made the Company shall not be
" liable for any loss or damage, and such Award
" shall be a condition precedent to any liability of the
" Company or any right of action against the Com-
" pany in respect of such claim."

The Offices adopting this clause evidently content themselves with the protection which the Arbitration Act of 1889 affords in respect to many points which were formerly mentioned in detail.

In the Foreign field, as the Conditions are used in many places where this Act is not operative, it is still necessary to

continue the use of many of the former Home stipulations, and so the Condition is somewhat lengthy. It reads:—

“ 17. If any difference arises as to the amount of any loss
“ or damage, such difference shall, independently of all
“ other questions, be referred to the decision of an
“ Arbitrator to be appointed in writing by the
“ parties in difference, or, if they cannot agree upon
“ a single Arbitrator, to the decision of two dis-
“ interested persons as Arbitrators, of whom one shall
“ be appointed in writing by each of the parties
“ within two calendar months after having been
“ required so to do in writing by the other party. In
“ case either party shall refuse or fail to appoint an
“ Arbitrator within two calendar months after
“ receipt of notice in writing requiring an appoint-
“ ment, the other party shall be at liberty to appoint
“ a sole Arbitrator; and in case of disagreement
“ between the Arbitrators, the difference shall be
“ referred to the decision of an Umpire who shall
“ have been appointed by them in writing before
“ entering on the reference, and who shall sit with
“ the Arbitrators and preside at their meetings. The
“ death of any party shall not revoke or affect the
“ authority or powers of the Arbitrator, Arbitrators,
“ or Umpire respectively; and in the event of the
“ death of an Arbitrator or Umpire, another shall in
“ each case be appointed in his stead by the party or
“ Arbitrators (as the case may be) by whom the
“ Arbitrator or Umpire so dying was appointed. The
“ costs of the reference and of the Award shall be in
“ the discretion of the Arbitrator, Arbitrators, or
“ Umpire making the Award. And it is hereby
“ expressly stipulated and declared that it shall be a
“ condition precedent to any right of action or suit
“ upon this Policy that the Award by such Arbitrator,
“ Arbitrators, or Umpire of the amount of the loss or
“ damage if disputed shall be first obtained.”

The first difference is striking in so far that, while the “Home Principles” make it obligatory for all differences to be submitted to arbitration, the Foreign Condition takes special care to make it clear that only questions of *amount* are to be so submitted. I expect the facilities given by the Act of 1889 for having a case stated for the decision of the Courts, so that any important points of law can readily be taken from the jurisdiction of the Arbitrators, is a sufficient safeguard in England, but in the Foreign field it is certainly necessary for the

Companies' interests that no question of liability be decided by arbitration. The only other point of difference between the Home and the Foreign Condition to which I will refer is the question of costs. The "Home Principles" leave this to the discretion of the Offices, and some Companies stipulate that each party shall pay his own costs, and the costs of the award shall be equally divided between the Company and the Insured. Those Conditions which are silent on the point really leave the decision in the hands of the arbitrators, and the Foreign Condition makes a similar stipulation. Loss Assessors in England tell us that the Condition providing for costs to be divided is the best in practice, as it helps to make Insured more amenable to reason, whereas if left to the arbitrators there is a strong chance of the costs being given against the Company. On the broad grounds of full indemnity, however, it seems more equitable that the costs should be left to the arbitrators.

The question as to whether an award by arbitrators would, according to law, be a condition precedent to any action has been much disputed. The reference in both Foreign and Home Conditions to this point is due, I take it, to the fact that while, according to English law, in the absence of such provision, the right to arbitration would be considered a condition precedent to any questions of amount, there is some doubt as to whether the same would be held in respect to questions of liability. In countries where English law does not hold, the local statutes on the question of arbitration vary largely, but in most instances the Courts are jealous of their privileges, and will not admit that their jurisdiction can be ousted by any general agreement to refer.

It is so self-evident that the arbitration clause in Insurance Policies is not within the rights of common law that I scarcely need mention the fact. It can hardly, however, be argued that it has been devised for the advantage of the Companies, as its purpose is to afford both parties a rapid and inexpensive method of adjusting differences—a purpose not always realised, I fear, as regards expense.

FORFEITURE OF PREMIUMS.

Most modern Home Policies contain a provision more or less in the following terms:—

“In all cases where this Policy is void, or ceases to be in
“force, all monies paid to the Company in respect
“thereof will be forfeited.”

It has been rendered necessary through decisions of the Courts to the effect that if a policy has been rendered void by any causes and the risk has not been run, the premiums shall be returned. This would have exposed the Companies to make a full return of premium in any case where the Insured could show, even after the expiry of the policy, that he had in some way rendered it void. The provision is a useful one for the Companies, but is very clearly intended to confer an advantage not obtainable under common law. No such provision appears in the Foreign Conditions.

WARRANTIES.

A clause of comparatively modern introduction on the subject of warranties appears on the Home Policies of certain Offices. It runs thus:—

“Any warranties to which the property insured or any
“item thereof is, or may at any time be made subject,
“shall attach and continue to be in force during the
“whole of the currency of the policy; and, notwith-
“standing Condition No. 2, non-compliance at any
“time with any warranty shall be a bar to any claim
“in respect of such property or item.”

The introduction of this clause was due to the astonishing decision given in a law suit to the effect that a warranty only applied, as such, at the time of the issue of the policy. In the Foreign Conditions no such clause exists, the same result being obtained as efficiently, I think, by making all warranties read “Warranted that during the currency of this policy.”

The final clause in the Foreign Conditions, and which appears in a few Home Policies, is to the effect that

“Every notice and other communication to the Company
“required by these Conditions must be written or
“printed.”

The intention evidently is to avoid informal conversations being held as binding the Companies.

FOREIGN COMPANIES' CONDITIONS.

It now remains for me to complete this resumé by a few references to Conditions in use in other countries where the

Uniform Policies do not apply. In the short time left at my disposal it is quite impossible for me to cover the whole of the world, and I will therefore confine myself to a short commentary regarding one or two countries. As a general rule the principles underlying Conditions in these countries are very similar to those recognised here, although interpretations vary to a very large degree. It would, however, afford material for as many papers as there are countries were I to attempt to talk to you of such points. I will, therefore, confine myself to mentioning in each case only those Conditions which mark an essential difference in practice as compared with our English methods, in the hope that you may find these peculiarities sufficiently interesting to hold your attention a little further.

France.

Taking France, our nearest neighbour, first, I would just remark that the essential difference between French Conditions and English Conditions lies not in the Conditions themselves, but in the spirit in which they are administered. The law there holds that an Insurance Policy is a policy of "*droit étroit*," that is to say, it must be interpreted strictly in accordance with its provisions, and this is reflected in the attitude of the Companies generally. As the Conditions generally in use are very numerous Insured are naturally concerned as to the correctness in every detail of their policies, and it is thought by French Insured as essential to have their policies drawn out by an expert broker as it is for us to consult our lawyers about the drawing up of any legal document. Some enterprising brokers have known how to take advantage of this state of mind by forming companies to undertake the guaranteeing of Insured against any risk of their Insurers declining liability, an essential part of the agreement being that the placing of all Insurances should be left to that particular broker.

There are two essential features in French practice which necessitate a number of conditions unknown in England. The first is the universal advantage which is taken by Companies of subrogated rights, giving rise to insurances against responsibilities of all kinds, and for these, special Conditions are necessary. The second is the custom of issuing policies for a long term of years, with premiums payable annually. This necessitates many special provisions as to payment of

premiums and also as to powers of cancelment vested in the Company. It further necessitates, on account of the discounted commission custom which has grown out of it, references to payment by the Insured of indemnities in the few contingencies which give him a chance of cancelling his policy before the period for which it was issued has expired. Apart from these special provisions and those regarding Insurance against explosion of steam boilers freely undertaken by French Fire Offices, there are no startling differences, but many unusual minor divergences. For instance, it is customary to provide that the Company will not pay when the loss is confined to trifling damage to linen, clothes, carpets, and such like, nor for property damaged while drying before a fire, or thrown accidentally into a fireplace. A curious stipulation is to the effect that the policy does not come into force until the next day at mid-day after payment of the premium and delivery of the policy.

The Insured must declare any previous fires he may have had—in some Conditions only where the loss exceeded £40. And an indication of the manner in which land ownership is split up is seen in the stipulation that he must also declare the fact when the land on which his house is built does not belong to him in freehold. It is further stipulated that when the land is only leasehold the indemnity will only be paid progressively as the building is reconstructed; failing reconstruction only the value of the materials—as old materials—being paid.

The Company has no general right of cancelment, but has the right at all times to reduce the amount of the insurance on certain classes of property. Loss settlements are almost invariably carried out by a mild form of arbitration, which is made a condition precedent but not binding on either party as to the amount decided by the experts.

France, however, must yield the palm to Belgium in the number of Policy Conditions, for in this latter country the number generally in use is 37. This is largely accounted for by the fact that, in addition to the special customs which I have mentioned as prevailing in France, also common in Belgium, there is in this latter country the further factor that by an Act passed in 1874 Insurance Law in Belgium was codified, and as the provisions of the Law are not always acceptable to

Insurers, various clauses "contracting out" (if I may borrow a term from our Accident friends) have to be introduced. The most noteworthy of these is to counteract the effect of the Article in the code which prescribes, "If the whole value is not covered by the first policy, the Insurers who have signed subsequent policies will be liable for the excess following the order of the dates of the policies."

In addition to declaring any previous fires, the Insured must also inform the Company of any threats to burn his property which he may have received during the ten years preceding the date of the policy. The Company may in *all* cases insist upon the indemnity being employed in reconstruction, and may only pay the indemnity progressively as reconstruction proceeds. In all cases of building insurances the Insured must produce evidence that no mortgage exists, or written consent of the mortgagee for the amount of the loss to be paid to the Insured.

Special reference must be made to the excellent Conditions adopted by the local Insurance Association in agreement with the Chamber of Commerce for Mercantile Insurances in Antwerp. These are concise and clear, and on the whole work very admirably. They make special rules as to contribution, and provide, *inter alia*, that policies covering more specific goods (not more specific ranges of risks) will contribute first. The Insured are dispensed from any declarations as to co-insurances, and as to increase of hazard in other premises than his own, whether in the same building or adjoining, and finally everybody renounces all rights of subrogation all round. This latter is an immense saving of complications in loss settlements, and as an additional 10 per cent. on all premiums is charged on this account no one is a loser by the arrangement to any appreciable extent.

Holland.

In Holland, described somewhere as the country of Lilliputian Insurance Companies, the Policy Conditions are of the quaintest. A German writer thus describes them—"The Policy Conditions include the most ill-defined risks; the value of the insured property is admitted without any adequate provision for a definite valuation, while principles of loyalty and good faith are invoked with a touching simplicity worthy of patriarchal times."

It is difficult really to say what the Conditions of these Dutch policies really mean, so curious is the wording. Locally by

long use and wont they seem to be well understood, and difficulties can scarcely arise, as there is so little the Company does not cover. The Conditions do, however, contain a clause by which the provision in the Code which provides that loss by explosion or gunpowder or of a boiler is declared to be loss by fire, is declared to be waived. Several other articles of the Code are waived, but I must confess myself unable to form an intelligible opinion of what is gained or lost thereby.

In Sweden a uniform set of Policy Conditions was adopted in Sweden. 1902.

These contain many curious clauses, although there is no essential departure from the principles recognised here, except that special provision is made for valued policies. In the arbitration clause it is provided that if the Umpire awards an amount in excess of the highest fixed by any one of the arbitrators or lower than the lowest, the award shall be set aside in favour of such highest or lowest amount as the case may be. Great carelessness on the part of the Insured causing a fire exonerates the Company. In cases where the Insured is tried for arson the Company is free from liability if the verdict is, to use the Scotch term, "not proven," but the rights of mortgagees are maintained in this and other cases where the Insured may have voided his policy, the Company having, however, a right of recourse against the Insured for the amount paid.

In Germany the Conditions in use, known as the "*Verband* Germany. Conditions," were adopted by all Companies in 1886. They are admirably drawn, and contain little that is foreign to our ideas. They contain a clause embodying the proposal form and answers to questions therein, as part of the contract. They stipulate that circumstances arising independently of the Insured's will, increasing the fire risk, only invalidate the policy if the Insured, after having become aware of their existence, neglects to give immediate notice to the Company in writing. Articles stolen at the time of the fire are covered, provided the Insured give notice to the police within three days of the fire. If the Insured in a grossly culpable manner causes the fire he forfeits all claim to compensation. After the settlement of a loss the Insured and the Company have the right to cancel all contracts of insurance existing between them, or on giving two weeks' notice.

Japan.

In Asia I will only refer to Japan, where Policy Conditions must be approved by the authorities, although no specific standard form is provided. The prescription clause, limiting right of action, is only allowed when the period is two years or more. In the clause dealing with subsequent alterations in risk the word "material" must be incorporated, and the clause limiting the amount of the indemnity to the cost of reinstatement to original condition is disallowed, some such phrase as "sufficient to compensate for actual material damage to property caused by fire" being substituted. With these and other minor changes, the Japanese authorities admit the ordinary Conditions of English Companies.

Mexico.

In Mexico, where the question of uniform Conditions is at present under consideration, it is found necessary to "contract out" of the provision of the Code which provides that the sum insured must be taken as the basis for loss settlements in case of total loss, and also to insert a clause to prevent the Insured raising a civil action against the Company before the Judge charged with the investigation of a fire shall have pronounced him free from guilt in the matter. A further clause is also necessary to protect the agents of a Company from being sued on account of any steps they may have taken in endeavouring to protect the interests of a Company—in reality, to prevent Insured from seeking to gain an advantage in settlement of loss by threatening to blackmail the agent.

South
America.

In South America we find that the chief points of difference arise from peculiar stipulations in the laws of the countries in which Insurance law has been codified. In all these countries English Companies use their General Foreign Forms, modified to suit the laws in question where these make provisions out of harmony with Insurance principles.

In Peru the object is effected by the insertion of an omnibus clause as follows:—

"Both the Company and the Insured renounce any laws
 "which may be in their favour at variance with the
 "conditions of this Policy, and undertake to respect
 "and carry out the latter strictly."

The policies of Peruvian Companies are signed by the Insured as well as by the Companies, so that this clause is perfectly binding.

In Chili the British Companies do not modify their ordinary Conditions, but the native Companies insert some such protecting clause as “apart from what is agreed to between the parties interested in virtue of this policy, it is understood that the provisions of the Code of Commerce will apply,” and some of these Companies think it necessary to have a duplicate signed by the Insured.

In the Argentine Republic the provisions of the Commercial Code have necessitated the incorporation in the policy of certain special clauses. Two only call for special notice, viz., the one which provides that the amount declared as insured by the policy is not to be taken into consideration as proof of the existence of the property at the time of effecting the Insurance, and the other which amplifies the co-insurance clause by making the same apply to all policies whether they be of equal, anterior or posterior date. This latter clause counteracts an article of the Code which, under certain circumstances, renders insurers responsible according to the order of the dates of their respective policies. These and one or two other clauses of no special interest are usually embodied in slips attached to the ordinary Policy Forms of English Companies.

In Australasia Uniform Conditions have recently been adopted based on the ordinary English Uniform Foreign Conditions. There are several important departures, however, in the following respects:—

- (1) The front of the policy is required to contain a clause embodying the proposal as part of the contract.
- (2) As already mentioned, the clause including bush, etc., fires is omitted.
- (3) The following somewhat curious clause is introduced:—
 “The payment of any premium, or the issue of any policy, receipt, or cover note shall be deemed conclusive evidence of the existence of other Insurance, whether liability under such other insurance be disputed or not.”

The *raison d'être* of this clause is to be found in certain legal decisions to the effect that an Insurance which is void for any reason is not an Insurance, and cannot be pleaded by another Company in diminution of its own liability.

- (4) Costs of arbitration are divided—each party paying own costs and a moiety of the costs of the award.

- (5) A very comprehensive "non-waiver" clause is introduced, modelled somewhat on the lines of the New-York Standard Form, which provides that no waiver of any Condition or requirement shall be held against the Company unless endorsed on the policy.

I do not propose to do more than mention the New-York Standard Policy in use throughout the greater part of North America, in many States of which it is obligatory under statute. Many books have been written on the subject of this form and the interpretations given by the Courts of its many phrases. It affords matter for an entire paper, and it would be presumption on my part to think that I could dispose of it in a few words at the end of what must already seem an unduly long paper. I therefore content myself with throwing out the suggestion that in some future session your Committee should seek to secure from some one familiar with American practices a paper on this subject alone.

In conclusion, I have to thank you for your courteous hearing on what must, I fear, have been a somewhat unentertaining subject. My only hope of relieving this paper from dulness has been that, as the subject is so closely connected with the daily practice of our calling, you will have brought with you to this meeting an interest sufficiently great to have enabled you to follow me with some degree of pleasure.

I have to express my indebtedness to the Manager of the Royal Insurance Company, Limited, for access to books and documents, to my colleagues for their generous assistance, to Mr. Charles McLaren for books and documents, and to "Bunyan," "Porter," and other writers on similar subjects, whose papers I have found in the annals of the Federation.

IRON AND STEEL WORKS.

By T. P. LLOYD, Northern Assurance Company.

A Paper read before the Insurance Institute of Newcastle-on-Tyne, 20th January, 1908.

A CERTAIN genial artist on the staff of *Punch* has made most of us familiar with peeps of the period he calls "Prehistoric," and if we accept this definition—"prehistoric"—for those far-off ages, when our primeval ancestors settled their disputes with a jagged flint, we may with some reason assert that "history" commences with the time when man discovered that Iron—in some lands it may have been Bronze—was a much more suitable material from which to fashion his weapons of offence.

The date of the discovery of Iron is quite a matter of controversy, and it is generally believed that the Iron first used by man was of meteoric origin. Indeed, according to Sir Henry Bessemer, the tools used in the building of the Pyramids were made of a meteoric Iron. It is beyond doubt that Iron was known to the ancient Egyptians, though it is thought possible that the metal used by them was imported as a finished material from Ethiopia, which land is probably the earliest centre of Iron making, as illustrations preserved of Egyptian Iron manufacture show the process precisely the same as still obtains among Ethiopian races—a shallow pit for smelting, with a bamboo pipe conveying the blast from a hand-worked bellows.

The swords of Damascus date back to very early times, and traces of Iron manufacture have been found in India, China, Japan, and in many places on the Continent of Europe, which traces go to show beyond doubt that Iron was smelted in various primitive ways long before the time of Christ. In this country Iron manufacture was carried on when Cæsar invaded Britain in 54 B.C., but the practical development of what we call the Iron Trade may be said to date from the introduction of coal as fuel for smelting by Dud Dudley in 1618, which discovery was followed

in turn by the replacement of coal by coke ; the building by James Watt, in 1760, of the first Blowing Engine at the Carron Iron Works ; the invention of Puddling of Henry Cort in 1784 ; of the Hot Blast by Neilson in 1828 ; and the various steel-making processes such as the Bessemer, the Open Hearth, and the Basic processes at later dates.

The Iron Trade is now one of the greatest in the Kingdom, and we only realise the tremendously important part played by Iron and Steel in our national life when we remember that together they form the basis of all our machinery, of all our weapons, of our means of transport by road, rail, and sea, of all our implements, not only of agriculture, but of every trade, and that by their means only have the triumphs of our engineers become possible.

In the course of this paper I shall only touch upon the Iron and Steel industry of this country, and shall not attempt to deal with that of our great rival, the United States, where the discovery of the immense Ore Beds of the Lake Superior Region has brought into being the City of Pittsburg, P.A., with its Steel Trust and its multi-millionaires ; indeed, as what small experience of the Iron Trade I have is limited to the Cleveland district and our own more immediate neighbourhood, the information I can offer is of necessity limited to the practices obtaining there.

The principal centres of the trade in Great Britain, with their approximate output of Iron and Steel in the year 1904, are given in the following table :—

DISTRICT.	PIG IRON.	STEEL AND WROUGHT IRON.
	TONS.	TONS.
Cleveland and Durham.....	3,200,000	1,300,000
South Scotland.....	1,300,000	1,200,000
South Wales.....	800,000	1,100,000
Cumberland and Lancashire.....	1,000,000	770,000
Lincolnshire, South and West Yorkshire, Derbyshire, Notts and Leicester, and Northamp- ton.....	1,300,000	630,000
Staffordshire.....	600,000	750,000
Other Districts.....	400,000	123,000
	8,600,000	5,873,000

In the United Kingdom there are some 120 Pig Iron Works, having 570 Blast Furnaces, of which from 340 to 350 are in operation. These furnaces consume from 19 to 22 million tons of ore and from 16 to 18 million tons of coal per annum, about two-thirds of the ore being raised in the Kingdom, the remainder being imported, chiefly from Spain.

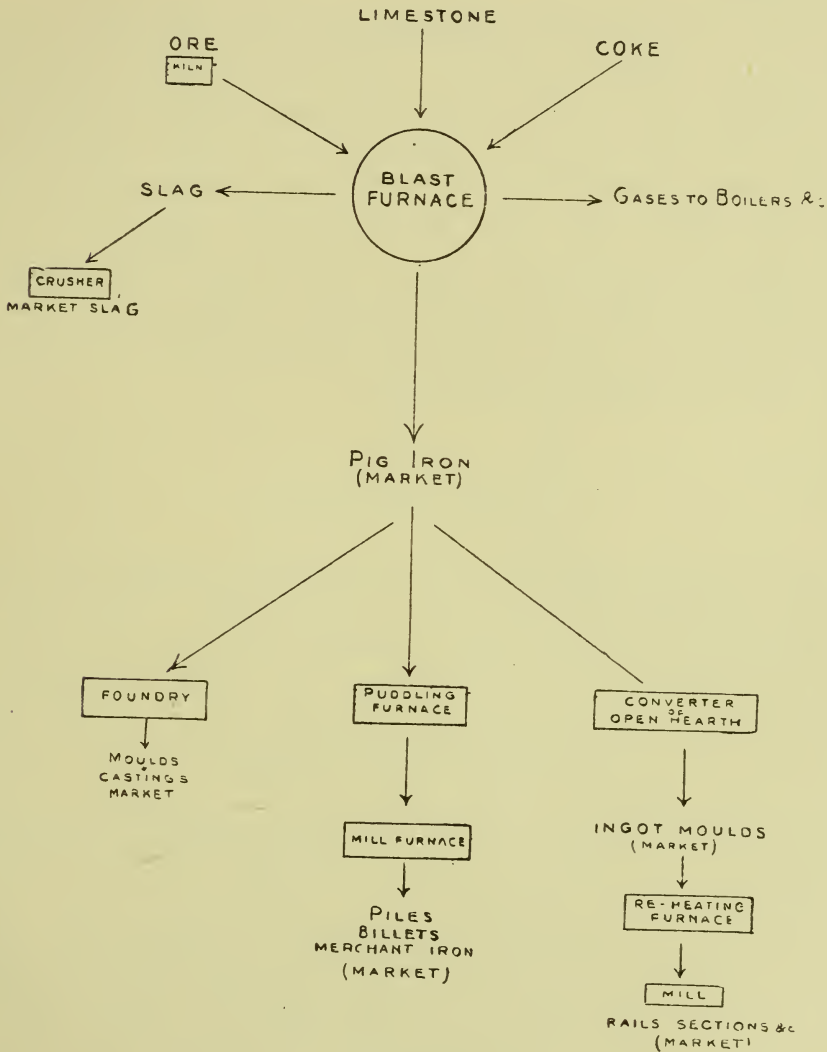


Diagram showing Transition of Raw Materials into Finished Products.

The following definitions of Iron and Steel may be given:—

Iron.—A fibrous material, having its strength in one direction.

Steel.—A crystalline substance, having its strength equally in every direction, and consequently adaptable to a much greater variety of uses and endowed with a longer life.

With these definitions in view, we can pass on to the actual manufacture at one of our Cleveland Works, commencing with a brief outline of the processes gone through in the production of what is known as Pig Iron—that substance being the basis of steel making.

A few words regarding Middlesbrough, the Ironopolis of the North, may not be out of place. The town had in the year 1811 a population of 35, while it has now over 100,000 inhabitants, the growth of a large industrial centre from an insignificant hamlet being entirely due to the discovery of Iron Ore in the adjacent hills. The town is particularly adapted for an iron centre, being situated within easy access of the Cleveland Mines and the South Durham Coal Fields, while the Tees offers a natural highway for the shipment of finished Iron and Steel as well as for the import of foreign ore.

PIG IRON PRODUCTION.

The materials required in the manufacture of Pig Iron are, roughly speaking, Iron Ore, Coke, and Limestone. The ironstone obtained in the Cleveland Hills resembles rough pieces of ordinary stone of a greenish hue, and presents a very different appearance from Spanish Ore or Cumberland Hematite, which look more like lumps of earth, varying in colour from a rich chocolate to purple. Indeed, the difference is more than one of appearance, as the Cleveland Stone only contains some 30 per cent. of Iron as against 50 per cent. in the other varieties.

The ore with limestone from quarries in Durham, and coke from the coalfield of the same county, is brought into the works by rail or water and placed in Storage Bunkers. These bunkers are usually a series of compartments underneath an elevated gantry, standing some 60 feet above the ground, the trucks containing the materials being run on the gantry and their contents discharged below. In front of the Storage Bunkers is another gantry, under which are the kilns for calcining the ore. This calcining process is only necessary with the Cleveland Stone, and

is practically a roasting of the stone to drive off the moisture and carbonic acid it contains. The Kilns (Fig. 1) are steel-cased

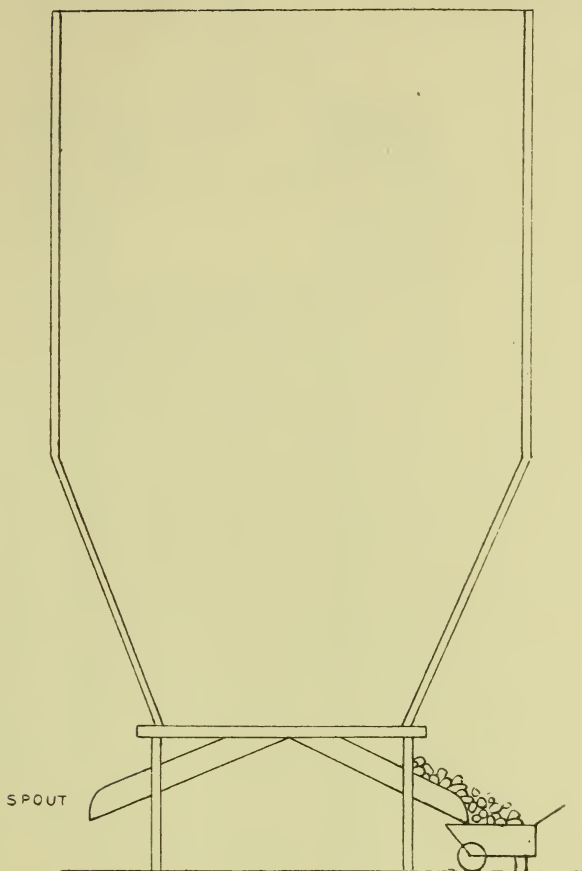


FIG. 1.

Kiln for Calcining Ironstone.

cylindrical structures, standing some 45 feet high, and lined with 18-inch firebrick. Hardly any fuel is needed, and once started with a small wood fire they are not allowed to go out except when repairs are necessary. The kilns are fitted at the bottom with shutters or spouts, through which the ore, when sufficiently roasted, is drawn out into metal barrows and conveyed, with limestone and coke, in similar barrows to the Blast Furnace, having, with the calcining process, changed colour from a greenish to a dull red hue.

The barrows are now weighed at the weigh cabin, and six of ironstone, three of limestone, and six of coke—constituting what is known as “a round”—are placed on a lift and elevated to the Blast Furnace Top. There may be one, two, or three, or even more

blast furnaces in a group, with two stoves for heating the blast to each furnace. The Blast Furnace is a steel-cased structure, standing about 100 feet high, and lined with a special firebrick to a thickness of from two to three feet, while the Stoves (Fig. 2) are also

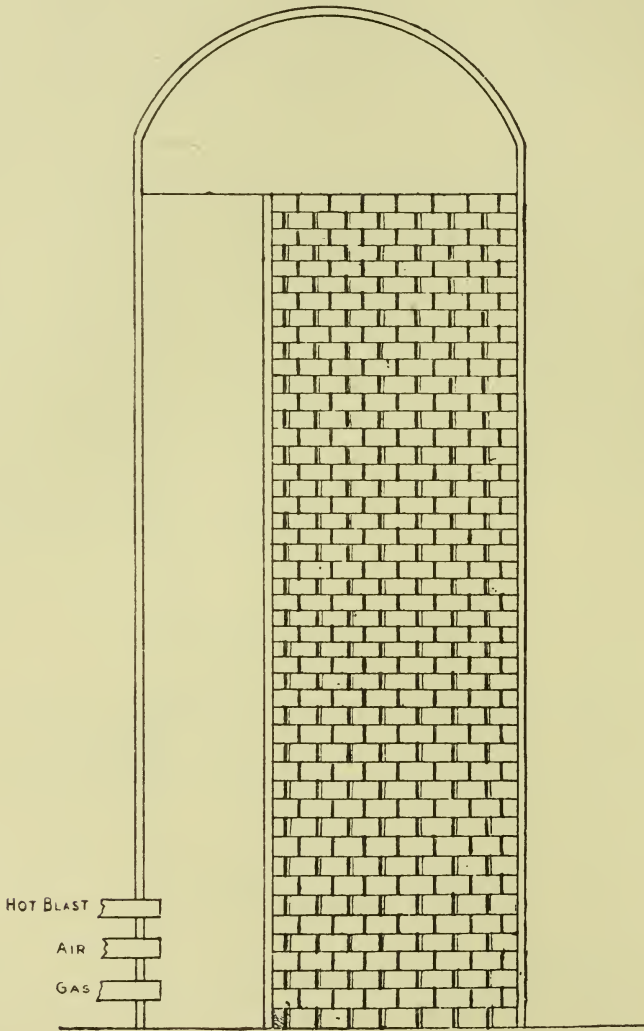


FIG. 2.

Stove for Heating Furnace Blast.

cylindrical, though not so high, and are lined inside with brickwork, and filled with a chequer work of loosely-piled bricks to collect the heat. These stoves, which are used to heat the blast, are themselves heated by the waste gas given off at the top of the Blast Furnace. Around the furnace top is a metal platform, about 10

feet wide, and the barrows containing the ore, coke, and limestone are emptied into the aperture, which is closed by a bell. The accompanying diagram of a Furnace (Fig. 3) will best illustrate

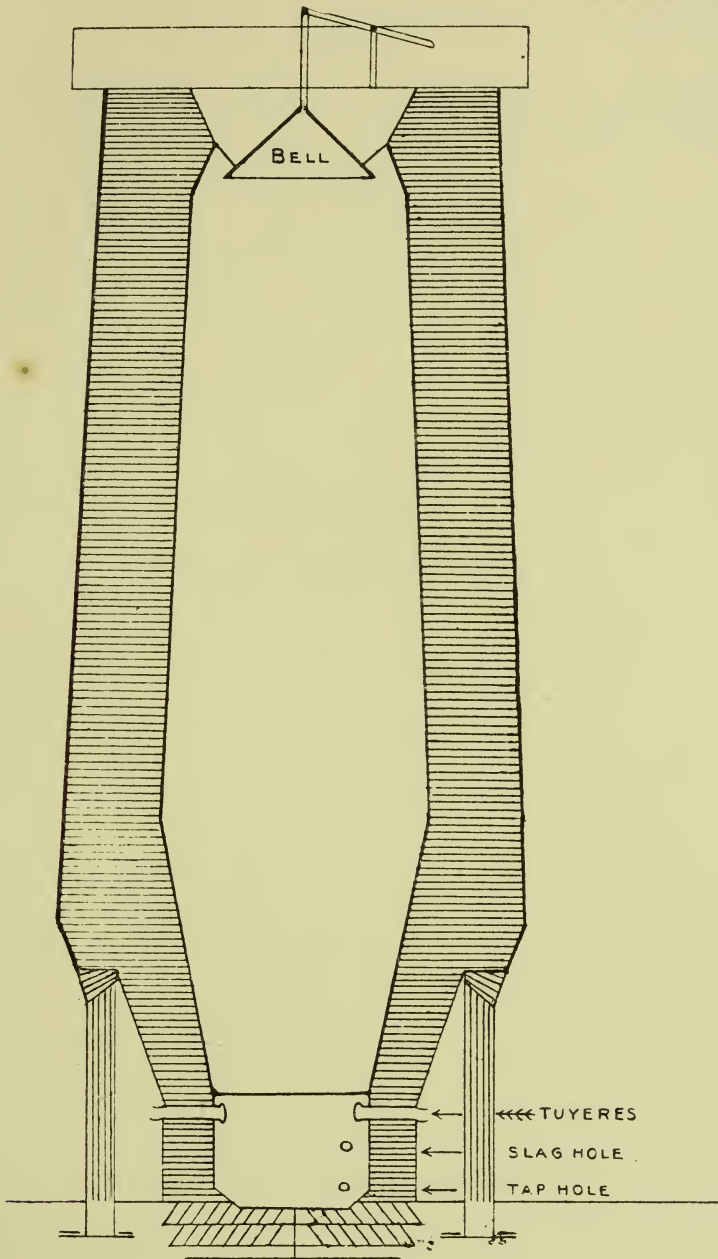


FIG. 3.

Blast Furnace.

the method of closing, and the sudden jet of vivid flame, with which most of us are familiar, is produced when the bell is lowered

at the time of charging, and not when lifted, as one would naturally imagine. The process in the furnace is as follows :—Iron Ore is a natural iron rust, a combination of Iron and Oxygen. Take away the oxygen, and iron alone is left. Carbon in the form of coke has the power of robbing iron ore of its oxygen, while the limestone is used as a flux, and unites with the earthy impurities of the ore to form what is known as Slag. The furnace is filled almost to the top with the above materials, the hot blast is driven in at the tuyeres, just above the slag opening, at a pressure of from 5lb. to 12lb. to the square inch, by the Blowing Engine, having previously been heated to a red heat by passing through the stoves already described. The temperature (2650° Fahrenheit) in the furnace fuses the materials, a portion of the coke is burned by the oxygen in the air and serves to maintain the high temperature, while the rest is robbing the ore of its oxygen. The air from the blast is red hot where it enters the tuyeres and immediately meets glowing coke which has been heated in its downward passage through the furnace. This region of the furnace is known as the zone of fusion, and here the real melting occurs, though a great deal of work has been done at the higher levels, for the gases from this hot zone are constantly rising through the 70 or 80 feet of stock on top and heating it to a great temperature. The ore is thus constantly being reduced, the earthy impurities unite with the limestone and are fused into slag, while the metallic iron, being heavier, falls to the bottom and is collected on the hearth below the tuyeres and is ready for tapping. The furnace is tapped four times in twenty-four hours for iron, while the slag is constantly flowing out of a hole, at a higher level than the iron opening, but below the tuyeres, made for the purpose.

The tapping of a furnace is a most interesting sight: A large bed of sand is laid out in front of the furnace and in this, by means of wooden patterns, a series of moulds are hollowed out. The taphole in the furnace, which is filled after every tapping with a lump of clay (which is almost immediately baked hard), is broken open by two or three men working a large crowbar, and the molten iron flows down the main runner of the prepared sandbed into the branch channels, forming what is known as the Sow, and thence into the smaller moulds known as Pigs. Here it is cooled by water and the pigs broken away from the sow in the form of pig iron. Where steel is made on the same premises the molten iron is not all cast into pigs, as such of it as is required for the steel

works is taken in ladles to the Metal Mixers. The average Cleveland Furnace is capable of producing some 800–1000 tons per week of pig iron, and with this rate of production a furnace will last in constant operation for from 20–30 years, never being “blown out,” as it is called, during that period.

I was shown one American Automatic Furnace, self-charging and producing 1800–2000 tons per week, but such a furnace is said to require relining every two years.

The hearth where the molten iron is collected and all the lower parts of the furnace are cooled by a series of water jackets.

It is interesting to note the amount of manual labour necessary in the production of Pig Iron. The materials are constantly handled from the time of entering the works till they leave in the form of finished Pig Iron, and of the total normal cost of producing a million tons of Pig Iron in the Cleveland district (say £2,000,000) 46% is expended in wages.

STEEL MANUFACTURE.

We are now ready to consider briefly the manufacture of Steel, which may be carried on at the same works as those which produce the Pig Iron; indeed, it is more common than not for the Steel-maker to have Blast Furnaces, or at least to be within easy access of same, so that a steady supply of molten metal is readily obtainable. For the purpose of this paper we will assume the Steel Works and the Blast Furnaces to be situated on the same ground, and our first step will be to inspect the Metal Mixers. The Mixers, which are really depôts to ensure a constant supply of metal from the furnaces to the Steel Works, are usually situate midway between the two, and there are generally a couple together, one being in use while the other is being relined. A Mixer is a pivotted iron vessel of about 200 tons capacity—brick lined and not as a rule heated, except by the molten metal it contains, though sometimes an arrangement of blow pipes burning a mixture of waste gas and air is utilised. The vessel is tilted when necessary and the contents poured into a ladle standing on a weigh-bridge below, and taken to the Steel Works as required. As already stated, the Iron wanted for Steel-making is taken in ladles to the Mixers, but such Iron as is produced on Saturday afternoons and Sundays is usually cast on the pig beds and has to be remelted for the Steel Works. For this purpose cupolas similar to those seen in a foundry are

used, the molten metal being subsequently passed through the Mixers, just as if it had come direct from the Blast Furnace, in order that the quality supplied to the Steel plant may be perfectly uniform.

I have already given a rough definition of Steel and Iron, but it is very difficult to give such a definition of Steel as will serve to distinguish between that substance and Wrought Iron, and, though scientific committees have sat for the purpose, it is hard to say, with present-day methods, what is Steel and what is Wrought Iron. However, current usage has practically allowed that by **WROUGHT IRON** is meant the product of the Puddling Furnace, and by **STEEL** is meant the product of the Cementation Process, or the malleable compound of Iron made in the Crucible, the Converter, or the Open-hearth Furnace.

Wrought Iron.—This form of Iron is made in what is known as the Puddling Furnace. This is a small rectangular reverberatory furnace, the bottom of which is lined with an oxidising material. Pig Iron in contact with Iron Ore is melted on this bottom and the impurities present in the Pig, *i.e.*, silicon, carbon, and phosphorus, are burnt out, the material boiling freely and slag forming on the top, which slag, carrying with it most of the impurities mentioned, is drawn off, leaving the Iron clean.

The Iron is then stirred or puddled with an iron rabble, and assumes a granular or pasty condition when it is patted into balls, removed from the furnace and worked up with a steam hammer into rough bars full of flaws. These bars are re-heated to a welding heat and passed through a rolling mill, becoming the merchant iron of commerce.

Steel.—Most of the hard Steel of to-day is made in the Open-hearth Furnace, or by Converters, but there are some purposes which call for Steel absolutely free from the minute imperfections often present with the Open-hearth, and in such cases the old Crucible process gives the most satisfactory results. For the manufacture of razors, needles, watch springs, and the like, Crucible Steel is almost always used, and though the process is over a century old, it bids fair to last another with little or no change.

Crucible Steel is made by putting a proper mixture of Steel Scrap and Hematite Pig Iron, having a large proportion of free carbon, in a plumbago Crucible tightly closed to prevent admission of air. The Crucible is placed in a sunk smelting pot-hole and

heated until everything is thoroughly melted, when the Crucible is lifted out and the resultant Steel either cast into ingots or into prepared foundry moulds of the article required. Steel can only be manufactured on a limited scale by this process, as a furnace with 14 pot-holes only averages about 400 lbs. of Steel per day.

The Siemens-Martin Process.—This is what is known as an “Open-hearth” process, and it is necessary that the Pig Iron used should be especially free from sulphur and phosphorus, consequently what is known as Hematite Iron is used. The furnaces vary in capacity, from 30 to 50 tons, and are rectangular chambers some 24 feet \times 10 feet inside. By the term “Open-hearth” is meant a furnace having a hearth on which the material operated on is exposed openly to the flame of the burning gases by which it is heated. The Siemens-Martin Furnace is gas-heated from producers, and is regenerative, or reverberatory, that is to say, the waste heat leaving the furnace, and which would otherwise escape, is caught in chambers containing loosely-piled firebricks. These bricks become highly heated by the escaping gases, and when the furnace is “reversed” the heat so caught is given up to the gas and air which are entering the furnace, thus causing an intense heat. Pig Iron, together with Scrap Steel to the extent of 20% of the total charge, is placed on the hearth at the bottom of the furnace and thoroughly melted, when pure Hematite Ore is thrown into the molten mass. The oxygen in the ore combines with the silicon and carbon in the Pig Iron, causing a violent reaction, or boil. When this boil has subsided the metal is tapped through a hole in the side of the furnace into a huge ladle, holding from 30 to 50 tons, and while it is running ferro manganese, in powder form, is added with a view to finally removing all oxides. From the ladle the metal is tapped into five-ton moulds and transferred to the Rolling Mills, in the form of steel ingots.

The Talbot Process.—I am glad to be able to give a rough outline of the Talbot continuous process as carried on at several of our North-Country Steel Works, particularly at the Cargo Fleet Plant. The furnaces are of the Wellman Open-hearth type, of 200 tons capacity, and the molten metal is brought from the Mixers in a 20-ton ladle. The furnace is regenerative, gas-heated from producers, and is started up at the beginning of the week with 50 to 70 tons of Steel Scrap. When this is melted along with the necessary re-agents, *i.e.*, Oxide of Iron, Pig Iron, and

Lime—metal from the Mixer is added and Steel produced until the furnace contains 175 tons of Steel of the desired quality. Fifty tons of this Steel is then poured into a ladle and cast into ingot moulds, leaving 125 tons of Steel in the furnace. This is over-oxidised by the addition of re-agents, and another 25 tons of molten iron added, when a violent boil takes place, and soon the furnace is ready to have another 50 tons of Steel drawn off and the process repeated continuously. The yield of Steel from every 100 tons of molten iron put in is from 104 to 106 tons of Steel Ingots, the gain being obtained from the Iron in the re-agents used. As the ordinary type of Open-hearth Furnace only yields from 92 to 94 tons of Steel per 100 tons of Pig Iron and Scrap charged, it will be seen that a considerable advantage is gained by the continuous process, while the Talbot Slag contains from 5 to 7% more phosphorus than the other, making it of greater value when ground for fertilisation purposes.

The *Basic Bessemer* process consists of blowing cold air through liquid Pig Iron in a vessel lined with a basic material, usually a hard burnt limestone containing from 30 to 40% of magnesium. Silicon in the Iron must be kept as low as possible, as it attacks the lining. The vessel, as will be seen in the diagram (Fig. 4), is a pear-shaped pivotted vessel with a moveable bottom in which are small holes for the blast. It is charged with molten metal from the Mixers already described, the blast is turned on at a pressure of about 20lbs. to the square inch, and the impurities driven out at the top, which is open. The process lasts about 25 minutes, and the colour of the flame indicates to the trained eye of the operator when the conversion is finished, though the spectroscope is used as a precautionary measure. In looking at the flame through this instrument three black lines, in reality the impurities, are seen rising vertically through the green strip of the spectrum, and when these disappear the operation is finished and the vessel tilted.

The fluid Steel now lies in the hollow shown on the diagram, while the slag floats on the top and, on account of the shape of the vessel, can be run off before the Steel. The Steel is poured into a ladle as in the previous process, Spiegeleisen—a mixture of pure Iron and Manganese—being added to give the toughness necessary to withstand the distortions to which it is subject in the Rolling Mill. The ladle is now moved mechanically over a casting pit containing 35 cwt. ingot moulds, and the Steel is poured into these.

As the temperature of the Steel is about 3700° Fahrenheit it has to cool about 40 minutes before being taken to the Mills. The slag from the basic process is valuable when ground as a fertiliser on account of the phosphorus it contains.

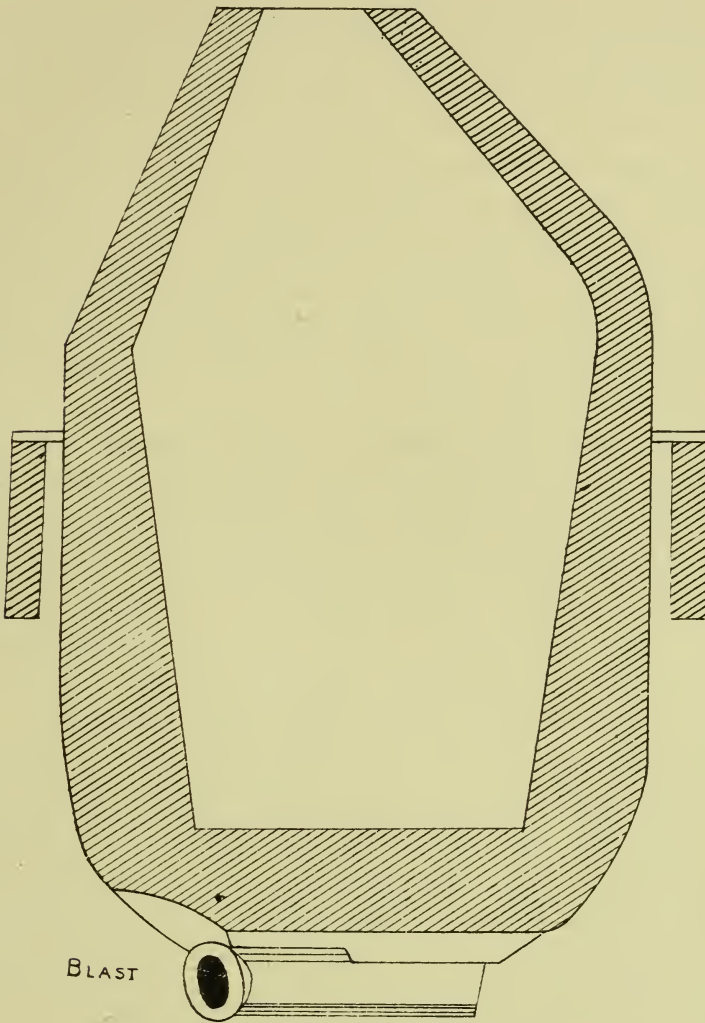


FIG. 4.

Bessemer Converter.

The *Bessemer* or *Acid Bessemer* process is similar to that last described, except that the lining of the Converter is composed of silica brick, while the Iron used must not contain more than .05 of phosphorus.

Having now roughly outlined the various methods of Steel Making, we will follow the Ingots to the Rail, Plate, and Angle Mills, which are their usual destination in this district.

The Steel made by the Bessemer process is a hard Steel, specially suitable for the manufacture of rails, and the ingots while still red hot are transferred by live rollers to what is known as the Cogging Mill.

This Mill is a large frame, provided with two sets of rolls, about eight feet long and 36 inches in diameter, the top roll being usually hydraulically balanced and capable of being screwed down by a rack and pinion, also worked hydraulically. The ingot is rolled and re-rolled eleven times, being reduced in cross section from 16 inches \times 16 inches to 8 inches \times 8 inches, when it is passed on to a pair of steam-driven shears and the rough end cut off. It is next transferred to the Rail Mill, usually by a series of levers and rollers, and passed six times through a Roughing Mill, similar in principle to the Cogging Mill, whence it is transferred to the Finishing Rolls, where it is rolled five times, and is then a finished rail some 180 feet long.

I am informed that, starting with the hot ingot, it is possible to go through all the processes I have described and turn out the 180-foot rail in two minutes and a half. The long rail is next cut into 30-foot lengths, which are removed to what is known as the Hot Bank to cool. After cooling, the rails are conveyed by means of skids to the Cold Bank and are straightened by a machine similar to a shipyard punching machine, the operator depending entirely on his eyes in judging the straightness. They are next taken to long benches, where the ends are ground by powerful planing machines, and thence transferred to another bench, where the fish plate holes are drilled by a horizontal drilling machine. The now completed rails are laid out on the inspection benches, where they await the eye of the Inspector.

Except for the variation in the shape of the rolls necessitated by the difference in section, the process of making tram rails is practically as just described, and they are grooved hot.

Fish plates for railway work are rolled hot and punched and straightened in one machine.

In this country almost every railway company has its own particular fad in the matter of rails, and this necessitates the stocking of a great variety of rolls for the Rail Mills, so it will easily be seen that a great saving would be effected by all the companies agreeing to a system of standardisation.

Plate and Sheet Mills.—The Steel from the Siemens-Martin process is a mild Steel, and therefore well adapted for rolling into

plates and sheets. The ingots are first of all reheated in gas-heated furnaces and taken to the Slabbing Mill, where they are rolled into flat rectangular pieces, known as Slabs. These Slabs are cut to suitable size—according to the length of plate required—and rolled in a similar manner to rails. In fact, the different Rolling Mill processes the Steel goes through, whether it be intended for plates or for angles, girders, or other sectional material, are very similar, and I will not therefore dwell on the subject.

Testing.—The Test House at a Steel Works is a most important institution, and here are brought samples cut off every length of rail and every piece of plate or sectional material turned out. The test for plates is a tensile one, and the sample to be tested is cut to a certain shape in a special sample-making machine and carefully measured, when it is fixed in the jaws of the testing machine, which is usually worked hydraulically. The machine is put into operation and the sample pulled until it fractures, when it is again measured and the length of stretch prior to breaking carefully noted. Rails which have to stand a hardness test have a hard steel ball driven at 50 tons pressure into their surface, the size of the indentation giving the tester the information he desires.

FIRE INSURANCE ASPECT.

The subject “Iron and Steel Works” is, I am by now quite convinced, too big to be tackled in one paper of this limited description, and the very rough outline I have given is little more than an attempt to scratch at the surface; indeed, without becoming too technical, it is difficult to do more. If I have taken up too much of your time with the crude description just completed, I am almost afraid I shall not be able to occupy enough with what, from our point of view, ought to be most useful. I mean the Fire Insurance aspect. To tell the truth, there is not a great deal of scope for Fire Insurance at an Iron and Steel Works, and though policies for comparatively large amounts are running on most of our local works, the risks covered are mostly subsidiary ones and do not present any special features which may be said to arise out of their connection with the trade we are considering. Perhaps the best plan to adopt with a view to appreciating the Fire Insurance aspect will be to make a hurried survey of an

imaginary works. The approach to a Cleveland Iron Works is a depressing one, the atmosphere murky and smoke-bound, the view obscured with hideous mountains of slag, while the foreground is covered with a network of rails along which dumpy little locomotives snort and puff as they draw their heavy loads of laden and unladen waggons. Having safely braved the terrors of shrieking engines and smoking slag ladles, and found an opening in the endless rows of standing trucks, we are glad to discover the office building, the natural starting-point of a tour of inspection.

The Offices, as a rule, are substantial, and here accommodation is found for the Managers, Commercial Staff, as well as for the Engineers and Draughtsmen, while often a Laboratory will occupy part of the building, though just as often a separate house is set apart for the Chemists, whose functions are, of course, most important.

Leaving the Offices, we find ourselves outside a range of buildings, usually standing adjacent, the shops for the repair and maintenance of the Works Plant. These shops, very much the same as those to be seen at a colliery, usually comprise Fitting and Machine Shop, Blacksmiths' and Boilersmiths' Shop, Pattern and Joiners' Shop, and General Storehouse, and do not call for more than the usual attention. The wood-working risks are generally provided with fireplaces on a generous scale; while the store is, as a rule, somewhat crowded and contains a varied stock of oils.

Near the Workshops we probably see a Locomotive Stable and a Waggon Repair Shed, and passing these we reach the Blast Furnaces, under the shadow of which we find divers scattered and varied erections in the shape of Weigh Houses, Men's Cabins, and Engine Houses for working Hoists and the like. These are almost always substantially built, though so thickly are they coated with ever-increasing deposits of the ruddy dust, which seem to impregnate everything in the vicinity of the Furnace, that it is difficult to see at a glance of what they are really built. A peep inside these dust-laden bowers usually results in the discovery of the ubiquitous pipe stove with its many frailties.

The Gantry over the various Bunkers, of metal with a certain amount of wood decking, is generally among the items of Insurance, while the Bunkers and Coke Pens below are also included with their contents. These Bunkers are usually subdivided by

brick pillars and have heavy timber fronts, while, as a rule, they are metal-lined.

Our next stopping-place is the Blowing Engine House, usually found in proximity to the Furnaces. This building is almost always a massive one, lofty, and roofed with a large metal water tank. The engines are very high, of the vertical cross compound type, and rise through two or three floors or galleries, generally made of cast iron and used only for inspection and lubricating. A set of pumping engines for supplying water for cooling the blast furnaces and for the condensers is found either in the Main Engine House or in a communicating offshoot.

The amount, if any, of wood lining is the only feature calling for attention as we pass into the Electric Power House, which is more often than not in communication with the Blowing Engine House. In the most recently equipped works in the North—the Cargo Fleet—a very radical change in the form of Blowing Engine has taken place, and there are installed large Horizontal Gas Engines, each of 800 h.p., propelled by waste gases from the Furnaces, and housed in comparatively light structures of corrugated iron on steel framework.

The Works Boilers almost invariably stand in the open and are heated by the waste gases from the Blast Furnaces or the Coke Ovens, if such are installed.

So far as the Pig Iron Works are concerned, we have now seen all the buildings that are essential, though perhaps a visit to the Wharf, with an examination of the Steam or Electro-Motor-driven Cranes running thereon, should have been included.

Crossing to the Steel Works, we see an extensive range of open shed buildings, with slate or iron roofs, supported on massive columns, with occasionally a certain amount of wood weather boarding at the eaves and gable ends.

Under this range of shedding may be found the Open-hearth Furnaces, usually at one end, the floor level being higher at the front of the Furnaces than at the back, where the metal is tapped. The Plate and Angle Mills, with their re-heating furnaces, occupy the next span, the gas producers for the furnaces being, as a rule, in the open; then under the successive spans of roof are seen the Rail Mills, the Hot Bank, and the various benches and machines for shearing, sawing, drilling, and planing the plates and rails. Overhead Travelling Cranes move in all directions, and on the ground level are Engine Houses for driving the mills and work-

ing the diverse rollers and levers by which the hot materials are manipulated and transported, while Offices, Cabins, Sample Houses, and Test Houses will be seen in various positions under the main roof.

The Steel Converting Plant and the Metal Mixers usually stand in the open, though the former is often provided with a roofed and elevated platform, from which the vessels are manipulated, while an Engine House for supplying the blast will be found in close proximity.

Where the lighter class of work is undertaken, a plant for corrugating, which is only another form of rolling, is often to be seen, and where this is the case a set of Baths and Furnaces for galvanising the sheets will almost certainly exist side by side.

In keeping abreast of the times the Ironmaster has had to branch out in other directions than the exclusive production of Pig Iron and Steel, and valuable bye-products, which were formerly allowed to dissipate to the detriment of the atmosphere, are now carefully collected, and various plants for the recovery of these residues are almost invariably to be found at the Iron Works.

Foremost among these economical innovations is the Recovery Coke Oven, and many of our works now boast a battery of patent ovens, which, it is sad to have to confess, are almost always of German origin. There is no denying the fact that, in the application of Chemistry to Commerce, we have had much to learn from Germany, a state of things which seems probably due to that country's more thorough system of technical education.

It is quite outside the scope of this paper to enter into details regarding the various bye-product plants, but it may be said that the Tar and Sulphate of Ammonia are the two substances generally recovered from the gases given off in the coke ovens, the processes and the buildings in which they are carried on being similar to those at a Gas Works, the coke oven taking the place of the retort, while Coke instead of Gas is the primary product. When the process is taken further, and the distillation of Benzol, Naphtha, and the other highly inflammable spirits obtainable from coal is pursued, we find risks of a very special nature, such as amply deserve a paper to themselves.

In connection with the Coke Ovens, a Coal Washery is occasionally in operation, and the various processes of Disintegration, Screening, and Washing to which the coal is subjected give the

Surveyor further scope, and add to the bulk of his report. The manufacture of Silicate Cotton, or Slag Wool, Slag Crushing, Tar Macadam Mixing, and Basic Slag Grinding for fertilisation purposes, are other examples of subsidiary industries in connection with the Iron Works, which I shall only mention. Silicate Cotton (much used as an insulating material), I might perhaps explain, is made by blowing jets of steam on molten slag, the operation being a very delicate and most interesting one to watch.

One other business found, in many instances, at an Iron Works is Foundry Work, particularly the casting of Railway Chairs and Iron Pipes, but, as Foundry practice generally is fairly familiar to all of us, it is hardly necessary to enter into any details here.

Generally speaking, the various erections at an Iron Works are substantial, and there always appears to be ample space, so that the different buildings are well spread and divided up into quite a number of distinct risks; while the materials with which the intervening open spaces are stocked are not of a nature likely to assist the spread of anything approaching a conflagration.

In conclusion, I have to express my thanks to Messrs. Bolckow, Vaughan & Co., Ltd., for kindly granting me permission to view their Eston Works; the Cargo Fleet Iron Co., Ltd., and the North-Eastern Steel Co., Ltd., for information readily given; and to Professors Thornton and Louis, through whose good offices I was able to show such a representative set of slides the night this paper was read; while it is only fair to mention that much of my information on Pig Iron production has been culled from a very interesting little work by Lady Bell, of Middlesbrough—published recently.



THE COMMENCEMENT AND TERMINATION OF THE FIRE INSURANCE CONTRACT.

By W. R. M'NAB.

*A Paper read before the Insurance Institute of Ireland,
13th December, 1907.*

THE subject is one which might, with advantage, have been entrusted to a lawyer, as many little legal points arise in its consideration that present perplexities to a lay mind. I have drawn freely from "Anson's Law of Contract," and every care has been taken to verify the statements made; it is hoped that the paper may prove of some service, by indicating the legal position in connection with important aspects of transactions with which we come into daily contact. We are, of course, aware that, in everyday practice, the Companies are not influenced so much by their bare legal rights, as by those principles of equity, and even generosity, which have earned for them their present high reputation. It is, nevertheless, of advantage to have a clear idea of what these legal rights are, and it is to be hoped that this attempt to deal with one interesting question will be but the commencement of a series of papers, in the Journals of the Federated Institutes, dealing with the legal aspect of other kindred problems.

I should remark that I have not endeavoured to follow Scotch law where it differs from that obtaining in England and Ireland.

It is well to indicate, at the outset, the method in which the subject has been approached, and the following synopsis will not only serve this purpose, but will facilitate reference to any special point included in the paper:—

PART I.—CONTRACTS IN GENERAL.

- (a) The Nature of Contract (page 223).
- (b) The Formation of Contract (page 223). Elements in a binding Contract considered:—

- (1) Offer and Acceptance (page 224).
- (2) Form and Consideration (page 225).
- (3) Reality of Consent (page 227).

PART II.—THE FIRE INSURANCE CONTRACT.

- (a) The Nature of the Fire Insurance Contract (page 228).
- (b) The Formation of the Fire Insurance Contract.
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PART I.

CONTRACTS IN GENERAL.

There are many features connected with Fire Insurance Contracts that do not concern us in our enquiries into the mysteries surrounding their commencement and termination; but as we consider

these important aspects of such transactions, it is well to have before us some pertinent facts regarding Contracts in general.

(a) THE NATURE OF CONTRACT.

Contract results from a combination of the two ideas of Agreement and Obligation. Contract is that form of Agreement which directly contemplates and creates an Obligation; the Contractual Obligation is that form of Obligation which springs from Agreement. Contract is Agreement resulting in Obligation.

Two points regarding Agreements may be mentioned:—

(1) The parties to the Agreement must have a distinct intention common to both. Doubt or difference is incompatible with Agreement. Nature of Agreement.

The proposition may be illustrated thus:—

Doubt. Will you accept a proposal on my premises if I am inclined to insure them?—Very possibly.

Difference. Will you insure my premises at 3/- per cent.?—We will cover them at 4/- per cent.

In neither of these cases, therefore, could there be Agreement resulting in Obligation, and accordingly no liability could rest with the Company.

(2) The parties must communicate to one another their common intention.

Secret acceptance cannot constitute an Agreement, but conduct may take the place of written or spoken words. We discuss this later.

An Agreement, to be a Contract, must signify a binding promise to do, or forbear from doing, certain specified acts.

Obligation is a legal bond whereby constraint is laid upon a definite person, or group of persons, to act or forbear on behalf of another definite person, or group. Nature of Obligation.

Contract, or the result of the concurrence of Agreement and Obligation, is an Agreement, enforceable at law, made between two or more persons, by which rights are acquired by one, or more, to acts or forbearances on the part of the other, or others. Definition of Contract.

(b) THE FORMATION OF CONTRACT.

We shall next make some enquiries as to the formation of Contract. The elements in a binding Contract, so far as our subject is concerned, appear to consist:— Elements in a binding Contract.

- (1) In a distinct communication by the parties to one another of their intention ; in other words, in Offer and Acceptance.
- (2) In the possession of one or other of the marks which the law requires in order that an Agreement may affect the legal relations of the parties and be an act in the Law. These marks are Form and Consideration.
- (3) In the genuineness or reality of the consent expressed in Offer and Acceptance, *i.e.*, that no mistake, misrepresentation, fraud, duress, or undue influence exists.

Let us take up these in some detail.

Offer and
Acceptance.

(1) *Offer and Acceptance.*—The expression of common intention must arise from an offer made by one party to another, who accepts the offer made, with the result that both are bound by a promise or obligatory expression of intention.

The following illustrations may be given:—(a) A promises B, under seal, to pay a certain sum ; when B has assented, both are bound and there is a Contract. Until B has assented, there is an offer which is irrevocable so far as A is concerned, owing to the particular form in which it is made, although it cannot bind B until he has assented to it. The deed may, of course, be constituted an escrow, but this point will be dealt with later. (b) B offers to transfer an insurance on his property to Office A, provided the rate be not increased. When A agrees to issue a policy at the same premium, the promise offered is accepted, and both parties are bound.

Rules govern-
ing Offer and
Acceptance.
Communica-
tion.

The following Rules which govern Offer and Acceptance may be quoted:—

(a) An offer, or its acceptance, or both, may be communicated either by words or by conduct, but it is essential to their operation that they should be communicated.

It has already been indicated that conduct may take the place of written or spoken words in the making of Contracts, but such conduct must be something more than mere silence ; it must be silence under such circumstances as to amount to acquiescence, an uncommunicated mental determination being insufficient ; for instance—if A ask Company B to insure his property, the Company, by preparing a policy, might be deemed to have accepted, but if A write Company B, "Unless I hear from you to the contrary, I shall assume you will accept my proposal," and the

Company take no steps, there is no liability, as the offerer cannot compel the recipient of his offer to refuse it, at peril of being construed to have accepted it.

(b) The offer must be intended to create, and be capable of creating, legal relations. Causing Legal Relations.

(c) Acceptance must be absolute, and identical with the terms of the offer. Unless this be so, the intention expressed by one of the parties is either doubtful in itself, or different from that of the other, and there can be no agreement. No Doubt or Difference.

(d) An offer unaccepted creates no rights, but may be revoked or lapse before acceptance, unless in the case of offers made under seal. Revocation will be dealt with under (e) and (f), but it may be remarked here that an offer is determined by the lapse of a reasonable time. Non-acceptance and Lapse.

(e) Acceptance turns an offer into a Contract, and is irrevocable. An offer can be revoked before acceptance, but is irrevocable from the moment of communication of acceptance. When the Contract is formed by spoken words, or by conduct, the moment of communication is not difficult to ascertain, except as a question of fact. When there is a written communication, the acceptance is made when the acceptor has done all that he can to communicate his intention, *i.e.*, acceptance is communicated from the moment of its despatch; accordingly, if the offer be made by post, "as soon as the letter of acceptance is delivered to the Post Office, the Contract is as complete and final and absolutely binding as if the acceptor had put his letter into the hands of a messenger, sent by the offerer himself, as his agent, to deliver the offer and receive the acceptance." Acceptance.

(f) Until the moment of acceptance an offer is revocable. An offer unaccepted creates no legal rights, as indicated above; it follows, therefore, that it may be withdrawn before acceptance, with the exception of an offer made under seal, which cannot be revoked, but which is not a Contract until assented to by the promisee. Revocation must be communicated, and if done by post a revocation is not communicated until received, as the Post Office is the agent employed by the offerer. When Offer revocable.

(g) An offer need not be made to an ascertained person, but no Contract can arise until it has been accepted by an ascertained person. Acceptance definite.

(2) *Form and Consideration.*—Having briefly considered how the common intention of the parties should be mutually communi- Form and Consideration.

cated so as to form the basis of a Contract, we shall glance at the evidence of such intention required in English law, viz., Form and Consideration.

By Form is meant some particular manner in which the expression of agreement must be denoted, as for example in writing, or under seal; by Consideration—some gain to the party making the promise, arising from the act or forbearance, given or promised, of the promisee.

Form.

The deed or contract under seal (sometimes called a Specialty Contract) is the only formal Contract in English law, and depends for its validity upon its form alone. All others are simple Contracts, dependent for their validity upon the presence of Consideration.

Deed or
Contract under
Seal.

A deed must be in writing or printed, and a Deed Poll (*i.e.*, a deed executed by only one party to the Contract) is made conclusive between the parties by being signed and sealed by the party who is bound by it, and delivered to the party to benefit under it, upon whom it becomes binding by reason of his acceptance of it. The seal may be on wax, a stamped impression, or merely a wafer, and the delivery need not be physical.

Constituted an
Escrow.

A deed may be delivered subject to a condition, when it does not take effect until the condition is performed. During this period it is termed an Escrow, but immediately upon the fulfilment of the condition the deed becomes operative. An escrow should not be delivered to one who is a party to it, unless the intention of the parties is clear that the deed is delivered conditionally.

Estoppel.

One characteristic of a Contract under seal may be referred to, viz., that the parties to the deed are not permitted to deny any matter asserted therein (unless duress or fraud is proved), such a prohibition to deny facts being termed an estoppel.

Simple
Contract.

A simple or Parol Contract, with certain exceptions, may be entered into by word of mouth, the form being needed here, not to give efficiency to the Contract, but as evidence of its existence. In certain cases, according to the Statute of Frauds, a simple Contract must be in writing; it seems, however, that the statute does not affect a Fire Insurance Contract; but, in accordance with the Gambling and Stamp Acts, a written document is necessary for such a Contract. There is not, of course, any statutory form of wording for a Fire Policy in existence in the United Kingdom.

Statute of
Frauds.

Consideration.

Consideration is necessary to the validity of every Contract not under seal, as above indicated; this must be valuable considera-

tion, but need not be adequate to the risk. If no agreement is made, as to the price of goods, for instance, the law concludes that the purchaser contracted to pay their value; if no agreement as to rate for a Fire Insurance exists, doubtless the current rate is assumed as agreed upon. The Consideration may be a promise for the future, or a present act, but the operation of the Contract is not necessarily postponed until actual payment has been made.

The form of a Fire Policy, in its legal aspect, may be either that of a Deed Poll (with or without a condition constituting it an escrow) or a simple Contract, and both classes are met in everyday experience. Uniformity of practice, in many questions, is not a strong point amongst the Offices, but the reason for the above important difference cannot be discussed here. It might be remarked, however, that it would be interesting to learn the considerations which would decide a Company to issue its Policies under seal. The Consideration is always in evidence on a Fire Policy, and it would be to the advantage of the Offices if the practice of permitting this to be a "promise for the future" instead of a "present act" were restricted.

Form of Fire Policy.

Consideration thereunder.

(3) *Reality of Consent*.—Under this heading it seems we are only concerned with mistake, misrepresentation, and fraud; the two latter circumstances are specially referred to in the Policy Conditions, and would, therefore, be more naturally dealt with in a paper concerning these, and it is to be hoped that such a paper will soon find its way into the Federation Journals. Regarding the question of mistake, this is a somewhat complicated consideration, and as it would seldom affect the subject under discussion, we shall but touch upon one aspect of mistake, viz. :—"When the parties are agreed, but the subject matter of their agreement, unknown to them, has ceased to exist." For

Reality of Consent.

Mistake.

instance, if Company A agrees with B to insure a building, which, *unknown* to both parties, is non-existent at the time the Contract would otherwise have commenced, the mistake goes to the root of the matter and avoids the Contract, provided there was no provision for an ante-dated insurance. There seems no reason why the parties should not contract, on equal terms, for an ante-dated Policy, but if B knew of the loss when making the proposal the Contract would be void, even though the Company accepted the offer and agreed to issue an ante-dated Policy.

Subject of Contract non-existent.

PART II.

THE FIRE INSURANCE CONTRACT.

We have now enquired into various points of the law of Contract of interest to us, so far as the formation of Contract is concerned; the question of the discharge of Contract will be dealt with later. Special circumstances and conditions which influence the commencement of a Contract are, however, often introduced, and require separate consideration. Such are usual in Fire Insurance Contracts, those that concern us being, (1) the desire indicated by the opening portion of the Policy recital, and by the presence of the Premium Payment Condition, to secure the payment of the premium, or of a deposit, before liability on the part of the Company commences—(this is not a *sine qua non* in ordinary cases); and (2) the issue of Protection Notes.

We shall first deal with transactions which are not influenced by any special condition, and later consider the changes brought about by the presence of the features just indicated, taking up the various points in the same order as they were discussed under the heading “Contracts in General.”

(a) THE NATURE OF THE FIRE INSURANCE CONTRACT.

Nothing further need be said under this head, but the following definition may be cited:—

“Fire Insurance is a system whereby, for a fixed payment, and subject to certain conditions, the Insurer undertakes to indemnify the Insured for loss or damage by fire, to certain specified property, to an amount not exceeding a fixed sum.”

(b) THE FORMATION OF THE FIRE INSURANCE CONTRACT.

We shall more fully discuss point (1), (Offer and Acceptance), before recited, omitting further reference to Nos. (2), (Form and Consideration), and (3), (Reality of Consent)—see pages 225 and 227.

(1) *Offer and Acceptance*.—The circumstances attending the inception of the Contract may be summarised as follows, and for the present we omit all reference to cases where Protection Notes are issued, or special conditions appear on the proposal form, which we discuss later:—

Special points influencing the commencement.

Premium Payment Condition.

Protection Notes.

Definition of Fire Insurance.

Offer and Acceptance.

The offer of the Insurance to the Company may be :—

Offer.

Case (1). At a certain rate.

Case (2). At a rate to be quoted.

Case (3). Without mention of any rate, which is tantamount to an offer at the current rate.

Note—In each of the above cases it is assumed that no agreement as to holding covered, pending settlement, exists.

Case (4). Under any of the above circumstances, (1), (2), or (3), but where an official of the Company, or an agent, has agreed to hold the property covered pending settlement, (no Protection Note having been granted, however).

Such offer may either be declined or responded to thus :—

Case (1). By acceptance (see Appendix A, page 253), or Acceptance. by the quotation of another rate, but this being a *Adie v. Inscos. Corporation.*
Case (2).

Case (2). By a quotation, which would be an offer by the Company, and this proposer could either decline or accept. If he offered to pay a different rate, we have again a counter proposal, which would be equivalent to an offer as in Case (1).

Case (3). By acceptance.

Case (4). Under the special agreement referred to, liability would be incurred by the Company as from the time of such agreement, subject to the proviso that the agent did not exceed his authority. As, however, Companies issue Protection Note Books to their agents so freely, it would probably be hard to prove absence of the necessary authority, unless some special instruction had been transgressed; in such an event the Company would not be bound, and the proposer's remedy against the agent would seem to depend upon whether the latter had acted *bonâ fide* or *malâ fide* in his assumption of authority.

In connection with Cases (1), (2), and (3), several of the rules that govern offer and acceptance (see pages 224 and 225) require further treatment, and we shall discuss them *seriatim* :—

Rules governing Offer and Acceptance.

Rule (a). Generally speaking, liability in connection with an offer made to a Company cannot commence in the absence of formal acceptance, until the Company has done some act by way of assent, capable of proof. Liability would, therefore, depend largely upon the Company's intention, as proved by its acts regarding the case; and as common prudence would suggest formal declinature, should the offer be found undesirable, it is likely that the onus would lie

Communication.

with the Office to prove that declinature had been intended, if a fire arose after full particulars were available, and reasonable time in which to decide had elapsed.

No Doubt or
Difference.

Rule (c). From this it will be seen that a counter proposal does not make the Company liable.

Non-Accep-
tance.

Rule (d). This indicates that an offer cannot cause liability if neither explicit nor implied acceptance exists.

Acceptance.

Rule (e). This rule is of the greatest interest to us, for it indicates that, from the time of acceptance, liability attaches. We must, therefore, ascertain what is "the time of acceptance."

Time of accep-
tance.

In the case of explicit acceptance, this would be the time of posting the acceptance, or, if the post be not used, the time of the delivery of the acceptance to the offerer, or at his residence or place of business, or to his agent (messenger, etc.), or of the verbal communication of acceptance.

If there has been no explicit acceptance at the time of the fire, an implied acceptance, indicated by some overt act, would probably suffice, say by the preparation of a Policy—*i.e.*, by such definite conduct as indicates intention, a mere mental determination being insufficient, (see Rule (a) and remarks thereon).

Regarding the time from which such implied acceptance would cause liability, the general practice of the Offices would doubtless be important, and since it is usual for the premiums to be calculated as from the day the order reached the Company (or its agent), it would be difficult to deny liability as from that date, in the absence of express stipulations to the contrary.

When Offer
revocable.

Rule (f). It is usually assumed in practice that a quotation, once made, cannot be withdrawn; this is not so, however, as it is revocable, provided that the communication of revocation be received by the proposer before he has accepted the quotation. A quotation can, therefore, either be altered or withdrawn, subject to that proviso—indeed, as stated above, in the absence of acceptance within a reasonable time, the quotation may lapse.

Proposal
Forms.

(c) PROPOSAL FORMS.

A few points may be briefly referred to here.

Theoretically, in each case a proposal form should be duly completed by the proposer or his agent, but this is probably more honoured in the breach than in the observance, which is not altogether to the advantage of the Companies. An order is, of

course, equally valid whether it be parol or in writing, though any verbal agreements, (such as the postponement of liability until a future date), would be more difficult to prove.

If a proposal be given to an agent of the Company and he should forget to transmit it to the Office, the capacity in which he was acting would be the first point to consider. If the Company's agent also acted as the proposer's agent, and, in the latter capacity, instructions were given him, but he omitted to effect the insurance, his principal would suffer; but if the order were submitted to him as the Company's agent, the position would be altered, and the commencement would depend upon the circumstances discussed above. This savours of hair-splitting, and such a question could not arise if the proposal be submitted to an official of the Company, or to an agent of the Company, who did not also act for the proposer.

Omission to submit a Proposal.

PART III.

SPECIAL CIRCUMSTANCES AND CONDITIONS AFFECTING THE COMMENCEMENT OF THE FIRE INSURANCE CONTRACT.

We shall treat these under the following headings:—(a) The Premium Payment Condition, and (b) The issue of Protection Notes.

(a) THE PREMIUM PAYMENT CONDITION.

It will be observed that no reference has yet been made to the question of the payment of the premium, the reason being, as before indicated, that there is no general rule of Contract requiring payment of the Consideration before the Contract takes effect. Unless, therefore, some special provision is introduced into the agreement, the fact that no payment has been made will not affect the question of the commencement of the Contract. Such a provision is sought to be introduced into the Fire Insurance Contract by means of the Premium Payment Condition. In this connection, the following quotation may be cited here:—"If an offer contains on its face the terms of a complete Contract, the acceptor will not be bound by any other terms intended to be included in it, unless it appear that he knew of these terms, or had their

Payment of Premium.

Uncommunicated Conditions.

existence brought to his knowledge and was capable of informing himself of their nature." In view of this, there seems little doubt that the comparatively new and special Condition in question could hardly be enforced in such cases as we have just discussed, if the proposer were unaware of its existence, especially if he had been led to believe that the property was held covered. It is unusual for Conditions to be particularised except when a Protection Note is issued, (indeed, this is assumed in these remarks), and, in the case of an acceptance, without the issue of a Protection Note, the question would hardly be "Had the person accepting for the Company authority to waive the Condition?" but rather "Did the proposer understand that the acceptance was subject to any Condition to such an effect?"

Wording of the
Premium
Payment
Condition.

The Condition is now in general use on Fire Policies, and a common wording might be quoted here:—

"The Company shall not be liable for any loss of damage
" happening before the Premium for the Insurance, or a
" deposit on account thereof, is paid, and no such pay-
" ment, and no payment in respect of the renewal of
" this Policy, shall be good unless and until a receipt
" for such payment, upon a printed form, issued from
" the Office of the Company and signed by one of the
" Company's authorised officers or agents, shall have
" been given to the Insured."

Wording of
Policy Recital.

In conjunction with this should be taken portion of the Policy recital, which usually runs to the following effect:—

"This Policy of Insurance witnesseth that.....,
" hereinafter called the Insured, having paid (or agreed
" to pay) to....., hereinafter called the Company,
" the sum of.....for insuring against loss or
" damage by fire, as hereinafter mentioned, the property
" hereinafter described, in the sum or several sums
" following, viz.

"The Company agrees, but subject to the Conditions
" endorsed hereon, which are to be taken as part of this
" Policy, that if the property above described, or any
" part thereof, shall be damaged by fire at any time
" between the day of....." etc.

The only important variation is inserted in brackets, and the words added seem to get over the apparent clashing of the recital with the Condition quoted.

We might consider the operation of the Condition under the following headings:—

Operation of the Condition

- (1) When the Policy is prepared under seal.
- (2) When the Policy is prepared under seal and properly delivered as an Escrow.
- (3) When the Policy is not under seal, no Protection Note having been issued.
- (4) When the Policy is not under seal, a Protection Note having been issued.

(1) *When the Policy is Prepared under Seal.*—It has been mentioned already that “where a man has entered into a solemn engagement by and under his hand and seal, as to certain facts, he shall not be permitted to deny any matter he has so asserted.” Such a prohibition to deny facts is termed an “estoppel.” Therefore, in Policies prepared under seal, when the recital does not contain the words quoted above in brackets, and there is no proper delivery as an Escrow, the statement in the recital overrules the Condition, which has, therefore, no effect upon the commencement of the insurance. The absence of actual delivery to the Insured does not influence the matter. (See Appendix B, *Roberts v. Security Co.* page 254.) when Policy under Seal.

(2) *When the Policy is prepared under Seal and properly delivered as an Escrow.*—From the case of *Roberts v. Security Co.*, just cited, it would seem to be of little advantage to a Company to deliver a Policy to be held as a Escrow, in view of the remarks of Lord Justice Rigby, quoted on pages 255 and 256 of the Appendix. if delivered as Escrow.

(3) *When the Policy is not under Seal, no Protection Note having been issued.*—Up to the time of the delivery of the Policy the position would be as already discussed, and if the Policy be delivered before payment of the premium, in the absence of the special Condition, the insurance would remain operative, and presumably an action to recover the premium is the Company’s only redress. when Simple Contract but no Protection Note.

If that Condition appear, however, the point arises as to whether the party issuing the Policy to the Insured had authority to waive a Condition, an authority not usually held. If such authority exist, the position would be as described under cases where the Condition is not present. In the absence of this authority, however, the acceptance of the Policy by the Insured would bind him to the Conditions, and render him unable to recover after Which prevails—Condition or Policy Recital.

receipt of the document, unless and until the premium had been paid.

*Equitable v.
Ching Wo
Hong.*

The case of the *Equitable Fire and Accident Office v. The Ching Wo Hong* may here be referred to, and as this is an important decision, the wording of the recital and the premium payment Condition, as appearing on the Western Policy, are quoted in full. (See Appendix C, page 256).

It may be mentioned that the Policy was not under seal, being, therefore, a simple Contract; no premium or deposit was paid, and there was not authority to waive the Policy Condition.

The decision may be summarised thus:—

(i.) The recital on the face of the Policy as to the premium having been paid is overruled by the Premium Payment Condition cited, the Contract not being under seal.

(ii.) The issue of the Policy, before payment of the premium, by one not vested with the necessary authority, does not constitute a waiver of said Condition.

Liability when
Protection
Note issued.

(4) *When the Policy is not under Seal, a Protection Note having been issued*; this brings us to the brief consideration of the effect of—

(b) THE ISSUE OF PROTECTION NOTES.

The general question of Protection Notes does not concern our subject, but only points regarding the commencement and termination of liability thereunder.

In absence of
Condition.

We shall first consider the commencement of liability under a Protection Note in the absence of the Premium Payment Condition, or if this Condition be not incorporated by reference in the Protection Note. The question is a simple one, under such circumstances, for unless the Company have been previously committed, as above described, liability is assumed from the time of the issue of cover by a representative of the Company empowered to do this, unless the commencement of its operation is specifically postponed. In the event of such postponement, inasmuch as no hour is mentioned as a rule, liability would start as from immediately following midnight of the day previous to that appearing on the form.

If the Con-
dition appear.

If the Premium Payment Condition is operative by the cover note incorporating the Policy Conditions, the liability will commence as mentioned in the previous paragraph, if the premium or

a deposit is paid in exchange for the form. Should, however, no payment be made at the time the Protection Note is issued, the Condition would invalidate the Protection Note unless granted by some person with authority to create a waiver, and I take it that when use is made of a specially-supplied book of Protection Notes, worded so as to provide for the future payment of the premium, (or of time on risk, in case of non-completion), but not requiring an immediate deposit, such authority could not be denied.

A practice adopted by some agents is merely to mark a deposit as having been received under the Protection Note, the proposer being given credit for the amount. This would appear to meet the Condition, and at the same time to get over the deposit difficulty ; how far it is a satisfactory system is open to question, but we cannot now discuss the subject of credit being allowed by agents. Crediting Deposit.

An interesting point might be mentioned here—in the case, say, of a transfer, where protection is issued beforehand as from the Quarter-day (Christmas, for example) on which the current policy expires. That cover would operate as from immediately following midnight of Christmas Eve, whereas the expiring policy remains in force until 4 o'clock in the afternoon of Christmas day, if such hour be named, or, in the absence of a definite hour being mentioned, until midnight of that day. In the event, then, of a fire on the 25th of December, before the expiring policy had run out, could not contribution be compelled under the Protection Note ? Commencement of post-dated Protection.

PART IV.

CONTRACTS IN GENERAL—DISCHARGE OF CONTRACT.

We have now discussed the commencement of Contract, and are accordingly free to take up the question of its discharge. A Contract is said to be discharged when the contractual relationship is terminated, and the rights and liabilities arising out of it are extinguished. The modes in which such discharge may take place, so far as our subject is concerned, would seem to be as follows :— Discharge of Contract.

- (a) It may be discharged by the same process which created it—mutual agreement.

(b) It may be performed, and all the duties undertaken by either party may be thereby fulfilled, and all the rights satisfied.

(c) It may be broken.

(d) It may lapse through the expiry of the time to which its duration was limited.

(e) It may be discharged by the operation of rules of law.

We shall consider these in their order, as some particulars should be mentioned :—

Discharge by Agreement.

(a) *Discharge of Contract by Agreement.*—This may occur through :—

(1) Waiver, cancellation, or rescission of the Contract.

(2) Substituted Agreement.

(3) Condition subsequent.

Waiver.

(1) Waiver is an express agreement that the Contract shall no longer bind either party ; such agreement would, of course, be subject to the rules governing Contracts, and would require to be under seal, or for consideration.

Substituted Agreement.

(2) A new and altered agreement may be substituted for the old one, there being no total obliteration of the Contract.

Condition Subsequent.

(3) A Contract may contain provisions for its determination under certain circumstances, such as (i) the non-fulfilment of a specified term of the Contract, which gives to one of the parties the option of treating the Contract as discharged ; or (ii) the occurrence of a particular event, such as “the act of God,” appearing as an excepted risk in a charter-party, releasing a ship owner from the strict performance of his Contract ; or (iii) the exercise by one of the parties of an option to determine the Contract, such as would exist in the ordinary contract of domestic service.

Form of Discharge by Agreement.

The general rule regarding the form of discharge by agreement is that the Contract must be discharged in the same form as that in which it is made ; a Contract under seal can only be discharged by an Agreement under seal, but a Parol Contract can be discharged parol. In the latter case there must, of course, be Consideration

Discharge by Performance.

(b) *Discharge of Contract by Performance.*—When all has been done on both sides that could be required to be done under the Contract, the Contract is discharged by performance ; for instance, if A contracts with X to pay him a sum of money, at a certain time, such a payment discharges A by the performance of his agreement.

(c) *Discharge of Contract by Breach.*—If one of two parties breaks through the obligation which the Contract imposes, the injured party will, under certain circumstances, be free from further liability. We shall only touch upon one of the ways in which a Contract may be broken—by one of the parties totally or partially failing to perform what he has promised; this will operate as a discharge, when the promises of the parties were conditional upon one another. Discharge by Breach.

(d) *Discharge of Contract through lapse of time.*—The rights arising from Contract may be limited in point of duration, and the expiry of the time named will automatically bring about discharge. Discharge through lapse of time.

(e) *Discharge of Contract by operation of Law.*—The only instance under this heading that needs to be mentioned is discharge through a material alteration being made in the written instrument by one party without the consent of the other. Discharge by operation of law.

PART V.

THE TERMINATION OF THE FIRE INSURANCE CONTRACT UNDER A POLICY.

We have completed our enquiries into the Law of Contract, having now treated the question of the discharge of Contract. We shall, accordingly, take up the consideration of the termination of the Fire Insurance Contract under the same headings; but first it is necessary to indicate a special feature of such Contracts, so far as the application of warranties is concerned. We shall touch upon the special features due to the issue of Renewal Notices and Protecting Notes later. Termination of Fire Insurance Contract.
Variations from ordinary Contract.

In ordinary contracts the non-observance of a warranty does not necessarily bring about a discharge, but may only give rise to an action for damages, unless it is evidently the intention of the parties to make the literal fulfilment of the point a condition precedent.

In Fire Insurance Policies the following Condition appears:—Special Condition *re* Warranties.
 “Any warranties to which the property insured or any item thereof is, or may at any time be made subject, shall attach and continue to be in force during the whole of the currency of the Policy; and notwithstanding the.....Condition, non-compliance at any time with any of the warranties shall be a bar to any claim in respect of such property or item.” From this it

will be seen that every warranty appearing on the Policy is to be treated as capable of avoiding the Insurance through breach.

Termination of
Fire Policy.

For the present we shall only deal with the termination of duly completed cases, leaving over till later the consideration of the ceasing of liability under a Protection Note.

The protection given under a Fire Insurance Policy lasts during the period mentioned therein, and neither the Insurer nor Insured can terminate the Contract otherwise than in one of the modes quoted on pages 235 and 236, which we shall now consider *seriatim*, save that no further reference to circumstance (e) seems necessary.

Discharge by
Agreement.
Waiver.

(a) *Discharge of Contract by Agreement.*

(1) Waiver, Cancellation, or Recision of the Contract.—In practice, this occurs through the voluntary surrender of the Policy by the Insured, with the Company's consent, during the Policy term.

By consent of both parties the Policy may be cancelled during its term, and it is the custom to then allow a return only after charging short-period rates; if, therefore, the Policy has been in force for more than six months before the surrender is sought by the Insured, no return can be allowed, (unless, of course, the Policy be a term insurance); and surrender would not be valid unless under seal. It sometimes happens, however, that the surrender is made at the Company's desire, with the Insured's concurrence, for a reason not within the scope of the Conditions; it is the practice, in this unusual event, to allow a *pro rata* return, as otherwise there would be no inducement to the Insured to agree, and it might be very desirable that the Company should get off the risk without delay; indeed, as mentioned above, the discharge would not be valid in the absence of Consideration unless the Policy were under seal, in which case the discharge, to be strictly legal, would require to be given under seal also. It must be remembered that a surrender of this sort cannot be compelled by either party in the absence of a special condition, referred to later.

Surrender
Endorsement.

Such surrender is usually accomplished by an endorsement on the Policy to the following effect:—"Memo.—In consideration of a return premium of....., receipt of which I (or we) hereby acknowledge, this Policy is declared to be surrendered and cancelled as from date hereof."

When this
takes effect.

Two points arise in this connection—Does the surrender take effect only as from the time the Insured signs the endorse-

ment, or does it operate as from the date the Office assents to the Insured's request for cancelment? The agreement as to cancelment is really a fresh Contract, and will come into operation, causing liability to cease, in accordance with the rules already fully discussed. The wording of the Insured's request would, therefore, be of considerable importance; if such a request could be read as merely made with a view to ascertaining what the Office would be prepared to do, the terms of the Company would require acceptance before the cancelment took effect; and, following such an enquiry, to endorse the Policy as above as from the current date, and then to treat the Contract as ended, cancelling re-insurances, if any, might lead to very unpleasant consequences. It seems that, pending Insured's acceptance of the terms, say, by completion of the endorsement, it would be hard to prove his intention, especially if, for instance, the special stock the Policy had been taken out to cover was still at risk. Care should be taken to ascertain definitely the Insured's intention, lest an accident occur before negotiations were completed, and difficulties should follow.

(2) Substituted Agreement.—This occurs through the cancelment of an existing Insurance during its term by a new Policy. There will seldom be any doubt as to whether a proposal is to be an additional insurance, or in lieu of an existing Policy; should, however, proposer's intention not be apparent, the question should be definitely ascertained, for, if the Company assumed cancelment in error, they must bear the consequences. When this point is settled, it will follow that, inasmuch as both the new Insurance and that cancelled cannot co-exist, the latter ceases as soon as the former comes into operation. The fact then to be ascertained is when the new Insurance came into force, and, as we have already dealt with this, nothing further need be added here.

Substituted Agreement.

(3) Condition Subsequent.—Three instances were named above, and we shall briefly consider these:—

Condition Subsequent.

(i) The non-fulfilment of a specified term of the Contract, *i.e.*, the breach of a warranty, giving the Company the right to void the Policy.

Non-fulfilment of Term.

In considering this point, we must keep clearly before us what a warranty is. A warranty is of much more stringent effect than description in a Policy. "If the description of the property is substantially correct, and a more accurate description would not have raised the premium, the error is not material," but when the statement amounts to more than mere words of description, and

Effect of Warranties.

certain facts are affirmatively stated, this takes the form of a warranty, and it must be strictly and literally true; its correctness is a condition precedent to the responsibility of the Insurer, and its materiality is unimportant, but its words may receive a liberal construction. "It is simply sufficient and ought to be sufficient," observed Lord St. Leonards, "to avoid the Policy, that any one thing warranted is untrue." A warranty must appear upon the Policy, either expressly set out, or by reference incorporated in the Policy.

Waiver of
Warranty.

It may be observed that in the case of a condition voiding a Policy upon breach, and doubtless also in the case of a violated warranty, the statement that the Policy is, therefore, void must be construed as meaning that the Policy is voidable; as Porter quotes—"The word 'void' in a private instrument can rarely, if ever, exclude the possibility of confirmation." There may, therefore, be a waiver on the part of the Company, and this may be inferred from acts and conduct on their part inconsistent with an intention to insist on the strict performance of the Condition—for instance, if a renewal premium be accepted after notice of breach has been given, the power to void the Policy on account of such breach would be forfeited.

Occurrence of
an excepted
risk.

(ii) The occurrence of a particular event specially appearing as an excepted risk. Instances of this would be the destruction of the building insured through a gunpowder explosion, by an earthquake, or some other event specially excluded by the Policy Conditions.

We shall not further discuss the voiding of the Policy through the operation of the Policy Conditions (beyond reference to an unusual Condition, quoted later), for reasons already stated.

Exercise of
power under
Special Con-
dition.

(iii) The exercise by one of the parties of an option to determine the Contract. This could occur by the cancelment of the Insurance, during its term, by the Company, in virtue of a special and unusual Policy Condition.

This Condition is little found here in the present practice of Fire Insurance, but in other branches of the business, and in such contracts in America, it is usual. In some cases there the right is extended to the Insured, subject to the payment of short-period rates, and the cancelment by the Company can only take place after a certain number of days' notice. When the Condition appears here, however, the power to cancel at will is reserved, and the following is a wording at present in use:—

“It shall be in the option of the Company at any time to terminate the Insurance expressed by this Policy by giving notice to the Insured, or the Insured’s recognised representatives, of their intention to do so, and upon delivery of such notice the Policy shall cease to be in force. The notice shall be deemed sufficiently given, if in writing, and left on the premises insured, or sent by registered letter post, addressed to the Insured, or to the Insured’s recognised representatives, at the address appearing on the Policy, and shall be deemed to have been received by the Insured, or the Insured’s recognised representatives, at the time the same should be delivered in ordinary course of post. On the Policy being delivered up, the Company shall refund to the Insured, for the unexpired term of the Insurance, a rateable proportion of the premium paid.”

Cancelment Condition.

This Condition is so seldom found that it need not be further discussed; suffice it to add that the Courts would, doubtless, refuse to allow this power to be exercised at a time when the risk insured against was imminent—say, through a serious fire breaking out in an adjoining building.

(b) *Discharge of Contract by Performance*.—In practice this would arise through the Policy being exhausted, or practically exhausted, by a loss.

Discharge by Performance.

In the event of a total loss, a special form of discharge, surrendering the insurance, is generally used, and this is desirable. The Policy, in such an event, is, of course, cancelled, and any later insurance must be by a new Policy.

Surrender Discharge Form.

The special form just mentioned is also sometimes used, even for partial losses, where circumstances have indicated that it is desirable to get off the risk, and such is often readily completed, in exchange for payment of the loss, although the surrender of the Policy cannot then be compelled. The following is the wording of such a special form of discharge:—

“Received from the Assurance Company, Limited, the sum of, the amount ascertained between the parties as due under Policy No., for Loss and Damage arising from a Fire which occurred on the day of 190 . ., and in consideration of which payment the said Policy is hereby declared to be surrendered and cancelled.”

An interesting American deviation from the practice of this country might be cited in this connection by the following quotation from Moore:—“When a loss is paid, cancel the Policy,

taking a receipt for the amount of the loss and of the return premium, if any, on the face of the Policy. Do this whether the loss is less than the amount of the Policy or not."

"In those cases where it is necessary and desirable to continue the Insurance, it should be done by a new Policy."

Discharge by
Breach.

(c) *Discharge of Contract by Breach.*—We discussed this above, under the heading (a) (3), "the non-fulfilment of a specified term of the Contract" (page 239). The two headings have been used in view of the fact that the former applies of a breach "not contemplated," but the latter to a breach considered possible and provided for.

Discharge
through lapse
of time.

(d) *Discharge of Contract through lapse of time.*—The rights arising from Contract may be limited in point of duration, and the expiry of the time will automatically bring about discharge.

We shall treat this under two headings :—

Expiry of non-
Quarter-day
Policy.

(1) The running out of the term of a Short-period or Twelve Months' Policy.—It is not the practice of the Offices to allow days of grace for the renewal of the Insurance under a short-period or 12 months' (non-Quarter-day) Policy, and all liability thereunder ceases, accordingly, on the date named in the Policy, at 12 o'clock midnight, if no hour is specially mentioned in the Policy.

No Days of
Grace.

The wording of the renewal notice used in connection with short-period Policies makes clear this discontinuance on the date named, and, in view of the fact that such days of grace, under an annual Policy, are, as a rule, allowed by the renewal notice only, there would seem to be little possibility of a claim for such extension being successful under a short-period Policy in the event of a fire shortly following the expiry of the Insurance. I cannot trace any case, however, in which this point arose, but the question of days of grace under annual Policies is discussed later.

Meaning of
"until."

Should the Policy state that the property is covered "until" a certain day, it should be noted that the word "until" includes the day of termination, as any vague expression will be interpreted against the Company.

Isaacs v. Royal.

In this connection the case mentioned in Appendix, (Case D, page 258), is interesting.

"Day of the
date of."

In some Policies (I have not observed it in a Fire Policy), instead of the words "the day of," etc., the expression "the day of the date of," etc., is employed, as if there existed some subtle difference in the legal significance of the latter whereby the day in question was excluded, and not included, as in the former. Bunyan remarks, however, that this distinction is exploded.

(2) The non-renewal of an Annual (or Term) Policy.—By the recital of the Policy, the property, as we have seen, is held insured until and including a certain date—that is, till 12 o'clock midnight of that date, unless an hour is cited. and this is usually 4 o'clock on the afternoon of the Quarter-day. This would enable us to arrive at a final decision straight away but for the complications introduced by the allowance of days of grace, which we shall consider.

Non-renewal
of a Quarter-
day Policy.

It has been the custom for over two centuries, (probably arising out of the older system of quarterly premiums), that the renewal of annual Fire Policies should take place at one of the fixed Quarter-days.

Quarter-days.

It has also been a general rule, from a very early period, that renewal can only be properly effected by means of a printed receipt, issued from the office of the Company, or otherwise under proper authority. A modern Condition in this connection reads:—

Condition *re*
Renewal.

“And no payment in respect of the renewal of this Policy shall be good unless and until a receipt for such payment, upon a printed form, issued from the office of the Company, and signed by one of the Company's authorised officers or agents, shall have been given to the Insured.”

It would be interesting to trace the history of the days of grace under Fire Policies, but we must confine our attention to the one aspect, *i.e.*, to the practical prolongation of the term of the Insurance they bring about, in accordance with current practice.

Days of Grace.

We must clearly understand that days of grace were originally intended to avoid inflicting hardship upon a Policy-holder who, from oversight or through temporary inability to pay the premium, might lose all benefit under the Policy.

Their use—

They were not allowed, as seems to be a common view now, to grant the Insured a 15 days' longer term than the Policy cites, thus enabling him to postpone payment, (a chance always eagerly availed of by some people), and a post-dated cheque for a renewal premium is not unknown.

And abuse.

We shall first consider how the Company becomes committed to allow days of grace. The Policy recital does not mention them, neither is there any statutory necessity to allow them, although a Bill with this object, *inter alia*, seems to have been brought forward about the middle of last century, but it never became law.

How Days of
Grace granted.

By Renewal
Notice.

The renewal notice for an annual policy, as a rule, alone grants the concession, but a few Offices refer to the point in the Conditions, or by a special note on the Policy, as mentioned later.

Position if Re-
newal Notice
not issued.

We may enquire here, should there be no reference to the extension, save on the renewal notice, if the mere absence of the notice would forfeit the benefit? Undoubtedly, if the same were withheld advisedly, as the Offices are under no legal obligation to issue such notice, though it is the general practice to do so; its absence does not affect non-payment. If, however, through an oversight, a notice was not sent out, it does not seem that the Office would have a strong case in refusing the concession, especially if the insured had clearly purposed paying, and was relying on the general practice of the Offices.

If the extension were granted in the Company's prospectus, or on the Policy, the absence of a renewal notice would not, of course, affect the matter.

When Days of
Grace cannot
be claimed.

Passing from this point, we might now summarise the circumstances under which no claim can be made by the Insured to the extension, as follows:—

If Company
decline.

(1) When the Company, exercising the right always reserved of discontinuing the Policy at renewal, advises the Insured of its purpose not to continue. When the Company has determined not to renew, formal notice of declinature to Insured seems desirable, (to avoid all chance of an added grievance), and it is necessary in order to obtain relief at Quarter-day, should the extension be allowed otherwise than by renewal notice.

Notice of De-
clinature.

It might be remarked here that notice of declinature sent to the Company's agent only would not relieve an Office of liability, but they would have a remedy against the agent, (which would hardly be used), if he failed to communicate the declinature to the Insured.

If Policy to
lapse.

(2) If the Insured has indicated that he does not intend to renew.

If refusal to
pay increased
premium.

(3) When the Insured has refused to pay an increased premium, and he cannot change his mind after a fire within the 15 days.

Salvin v. James.

(See Appendix E, page 258.)

If Insurance
not to be
renewed.

(4) If the Insured has definitely shown by his acts that he regards the Insurance as terminated.

In case of
transfer.

(5) When he has transferred the insurance; though merely seeking quotations from other Offices would not forfeit the benefit.

Does issue of
notice compel
acceptance of
premium?

We might here enquire if the issue of a renewal notice, by or on behalf of the Company, in any way binds it to continue the Insurance.

We shall first consider the remarks made in connection with the case above cited. (See Appendix E, page 258.)

Some years previous to this case, it should be mentioned, an Office had won an action that, under the wording of its contract, it was not liable for a fire within the days of grace, and could refuse the tender of premium within such days. (*Tarleton v. Staniforth.*)

This led to the other Offices proclaiming their greater generosity in their treatment of their clients, and advertisements issued by the "Sun" interest us here. (See Appendix F, page 259.)

It will be observed that the wording of the advertisements is very definite, and gives an absolute extension for 15 days, during which time the Company could not decline renewal whether a fire arose or not.

In this connection, the following interesting Condition may be cited (No. 29 of Westminster Fire Office, 1805):—

"All Insurances shall be deemed to have expired at 4 o'clock in the afternoon of the last day of the term for which the Policy, whether annual or septennial, shall have been granted, but 15 days shall be allowed to every person insured, to be accounted from the expiration of his or her Policy, for the purpose of renewing the same; and in case any loss or damage shall happen by fire before 4 o'clock in the afternoon of the last of these 15 days, and such Policy shall be renewed during that time, or the premium paid for the renewal thereof, then such renewal shall take effect from the expiration of the former Policy (premium?) so as to cover such loss or damage to the extent insured."

The expression "days of grace" did not come into use till a date much later than above.

A current Condition, in which the days of grace are mentioned, reads:—"In the case of annual Policies, if the Insured intends to continue the insurance, the future payments must be made within 15 days after the date of renewal mentioned in this Policy, otherwise this Policy will be void. The Company has power to decline to continue the insurance, or to alter the premium at the term for renewal of this Policy." On another Company's Policy the following note appears:—"Renewal premiums must be paid annually, within 15 days after the expiration of each year, or the insurance will be void."

The wording of the different Companies' Renewal Notices varies considerably; one for Annual Policies, now before me, reads to the

Reference to
Days of Grace
on Policy.

on Renewal
Notices.

effect that the *Policy* will expire at the Quarter-day (just as is mentioned in the *Policy* recital), but goes on to say that “unless the premium be paid within 15 days from that period the *insurance* will become void”—i.e., the *Policy* expires at Quarter-day, but may be revived within 15 days, the *insurance*, however, remaining in force during that time.

Right to
decline.

The notice is merely of the nature of a reminder, and no form before me could be taken as equivalent to an offer to renew the *Insurance*, at the premium named; accordingly during the days of grace the *Policy* is renewable at the option of the Company, but if the premium be tendered before their expiry, the Company cannot refuse to accept this and deny liability in the event of a fire. It seems obvious that the clause in the *Policy* recital usually reading thus:—“So long as the Insured..... shall pay to the Company, and it shall accept, the sum required for the renewal of this *Policy*, on or before the said last-mentioned day, and on or before the same day in each succeeding year.....,” is not intended to leave the option of declining with the Company up to the Quarter-day *only*, but the position of the words “and it shall accept” is, perhaps, a little unfortunate.

All notices are not so clear as to the intention of holding the Insured covered during the 15 days as that above quoted, and one before me reads:—“The above-mentioned *Policy* expires, and if the *Insurance* is to be continued, the premium should be paid within 15 days after that date.” Is this intended neither to bind the Company to accept renewal, nor to hold covered during the days of grace?

Expiry of Days
of Grace.

After the lapse of the 15 days, i.e., after midnight of the 15th day after Quarter-day, the *Insurance* is void, and requires the sanction of the Company to its revival.

It is a curious circumstance that, while most Companies, in the *Policy* recital, name an hour for the expiry of the *Policy* as at the first renewal, few so word the recital as to carry the restriction beyond the first renewal, and there seems to be no hour fixed for the cessation of the Contract under the days of grace, the legal one of 12 o'clock midnight, therefore, applying.

If the last of the days of grace fall on a Sunday, or public holiday, the premium becomes payable on the preceding day.

Should an agent issue notice for a *Policy* which the Company had declined before Quarter-day direct to the Insured, it would seem that the notice would not have the effect of making any extension. Days of grace cannot apply to a declined *Policy*.

Again, the days of grace are merely an extension of the term for the purpose of payment of premium. The Company, we have seen, cannot deny liability, after a fire, if the premium be tendered within the days of grace; but should the period of extension expire, and the premium remain unpaid, the Company will have no liability, even if the loss occurred within the days of grace. (See Appendix G, page 259.)

Renewal after
Days of Grace.

*Simpson v.
Accidental
Death Co.*

The position, if the premium be not paid until after the days of grace have expired, and a fire has occurred after Quarter-day, but prior to the payment, might be summarised thus:—

(1) If the premium were accepted by the Company in ignorance of the loss, the Policy will not be deemed to have been renewed unless there was a special agreement that the Insurance should date back “lost or not lost,” a very unusual method in Fire Insurance.

(2) If the Insured were aware of the loss when paying the premium, and did not disclose it, the concealment would be fraud, and the Policy, in accordance with the usual conditions, would be invalidated.

An interesting case under a Life Policy is cited in Appendix (Case H, page 260).

*Pritchard v.
Merchants Co.*

The wording of the notice granting days of grace must be so drawn up that, while protecting the Insured, the Company do not in effect allow an unconditional 15 days' additional Insurance. (See Appendix I, page 261.)

*M'Dowell v.
Carr.*

It might be interesting to enquire here if any action of the Company in connection with a lapsed Policy would be construed as an admission that it had not terminated—for instance, if, through an oversight or lack of correct information, steps were taken to adjust a loss under a discontinued Policy, would that waiver the Company's right to prove the Policy was void through non-renewal? Presumably this action of the Company, through misconception, would not revive an expired Policy; but, in the case of a Policy rendered voidable through the breach of a Condition, known to the Company, such action might amount to a waiver by them, and forfeit their right to treat the Policy as void, as already indicated.

Treating
lapsed Policy
as in force.

In the event of liability having been undertaken by an agent or official of a Company, and advices to the Office omitted, it is a question how long that liability would continue. (See Appendix K, page 261.)

Omission to
prepare Policy.

*Thompson v.
Adams.*

It would hardly seem likely that an agent could, through an oversight, make the Company liable for an indefinite period (at least, without giving the Company a remedy against him, which would never be exercised), and, doubtless, in any case, if no enquiries were made by proposer within a reasonable time, he would be considered as having abandoned the proposed Insurance.

In the event of an oversight on the part of a Company, especially with the lapse of such a short period as in the case just mentioned, it is hardly necessary to say that the attitude of the underwriter would not be adopted by a first-class Company.

PART VI.

THE TERMINATION OF THE FIRE INSURANCE CONTRACT UNDER A PROTECTION NOTE.

We have, so far, considered the termination of the Fire Insurance Contract under a completed Policy only, but there yet remains an aspect of this part of the subject of considerable importance, and of a somewhat complicated character; I refer to the termination of liability under a Protection Note, which we shall now proceed to discuss.

The question of the commencement of liability under a Protection Note was comparatively simple, for little reference to the documents themselves was required. In considering the termination of such liability, however, this is necessary, and a difficulty immediately arises, for most Offices seem to glory in splendid isolation as regards the wording of their Protection Notes, each, apparently, aiming at having something different from its neighbour; and, strange to say, in no one point are all those I have before me alike.

The liability under a Protection Note may cease in one or more of the following ways (apart, of course, from fraud or other breach of the Policy Conditions), and we shall deal with them in turn:—

- (1) By declinature of the proposal.
- (2) By preparation, delivery, etc., of the Policy.
- (3) By the operation of a time limit (if any).
- (4) By the expiry of cover granted for a short-period Insurance.

Termination of
liability under
a Protection
Note.

Usual ways.

(1) *By Declinature of the Proposal.*—The reservation of a more Declinature. or less unrestricted power to decline is one of the points in connection with Protection Notes in which the Offices are most nearly unanimous. When no time limit appears, in all cases where this power is reserved, it can be exercised at any time prior to the delivery, preparation, etc., of the Policy. When a time limit appears, some Protection Notes seem to confine the power of declinature to within that limit, on the assumption, evidently, that the transaction, in every case, is absolutely at an end on the expiry of the specified number of days; we shall discuss this point later.

Even the important right to decline is not always secured, for one form before me gives cover from a certain date, adding—“The Policy to be prepared and forwarded”; another states the case is “provisionally accepted and held insured for 30 days.” In neither case is reference made to declinature, and as there is not a Policy Condition providing for cancelment, the cover seems to be absolute.

Before leaving this point, it may be remarked that it is doubtful if liability could be declined on the risk insured against becoming imminent, say, on account of a fire on premises adjoining the building insured.

(2) *By Preparation, Delivery, etc., of the Policy.*—The liability Cesser Clause. under a Protection Note is usually stated, by what we might call the “Cesser Clause,” to expire when—

- (a) The Policy is delivered.
- (b) The Policy is prepared and delivered.
- (c) The Policy is prepared and premium paid, or,
- (d) The Policy is prepared and premium demanded.

In one instance application for premium is to be made when the Policy is ready, and protection ceases if payment is not made in three days.

In a number of cases no reference is made to the supersession of the Protection Note by the Policy, this being taken for granted, and it is hardly possible, even with this omission, that the issue of a Policy could ever bring about the risk of double insurance. In practice, such cases would be equivalent to (a) or (b) above.

It is hard to fathom the reason for the above variations, but (c) appears to be the most liberal.

It is a question if (a), (b), or (d) could be strictly enforced, for under (a) and (b) the Premium Payment Condition might invalidate the Policy on delivery, and in (d) the Protection Note would be cancelled by demand of the premium; doubtless the Courts would give the Insured a reasonable time in which to remit, and this, it will be observed, is provided for in one case, where three days are allowed for payment.

Operation
of time limit.

(3) *By Operation of the Time Limit.*—Some Companies leave their liability under a Protection Note operative until notice of declinature is given, or the Policy is prepared, etc. The point arises as to whether such cover would hold good indefinitely in the case of a Protection Note issued in proper form. The position would seem to be the same as discussed on page 247, where reference is made to a case in point cited in the Appendix (Case K, page 261).

*Thompson v.
Adams.*

Effect of ex-
piry of time
limit on
liability.

In the great majority of such documents, however, a time limit appears, and the value of this we shall now consider. By this limit it is evidently desired to make the acceptance a temporary one only so that on the expiry of the given period the contract should absolutely cease, just as would be the case under a short-period Policy. In most instances the wording of the Protection Note indicates this intention sufficiently clearly, and little doubt could arise.

It sometimes happens that the time limit expires when it is really the Company's desire and intention that the case should be completed in the usual course, but, through an omission on their part, a fresh Protection Note is not issued on the expiry of the limit. The question may be asked if, in such an event, the Court would consider the intention of the Company if this could be proved; it is unlikely, however, that such a case could arise, as a Company would hardly rely on the omission and deny liability, if it was intended that the case should be completed in the usual way, and be held insured in the meantime.

While the purpose of the time limit is clearly expressed in most cases, a few Protection Notes do not seem to be so carefully worded, and it is possible that in one or two forms the time limit might be held to have been inserted in order to give the Company an opportunity of securing the necessary particulars and considering definite acceptance, and that, failing declinature within the limit, the ordinary rules of offer and acceptance should apply.

Let us glance at the case of *Joseph Levy v. Scottish Employers Insurance Company* (see Appendix L, page 262), where the following interesting points arise:—

(a) A special condition on the proposal, following which the cover note was issued, read—"The proposed Insurance shall not be binding on the Company unless a Policy shall be issued in respect thereof." The object of this provision would clearly seem to be to secure that, following the issue of a Protection Note, the Company could not be bound to proceed through any misinterpretation of the effect of the time limit.

(b) The declaration that an ordinary agent has not power to contradict the terms of the written document.

(c) Declinature had been made to the agent only; had it been duly communicated to the proposer, the action would not have arisen.

In connection with this last statement, it may be remarked that if liability has been assumed, notice of declinature should really be sent by registered post direct to the proposer, or, if the proposal was submitted by his agent, notice to such agent suffices.

The case of *Wylie & Lochhead v. Times Insurance Company* may also be referred to here (see Appendix, Case M, page 262).

It will be observed that this case not alone shows that care in declinature should be exercised, but also seems to support the contention that after the expiry of the time limit, failing declinature, liability may continue under some Protection Notes.

The case of *Hayes & Cunningham v. Fine Art and General Insurance Company* (*vide* Insurance Record, 1900, page 589) is interesting to us in showing that the recovery of a Protection Note on cancelment by the Company is not necessary.

(4) *By the Expiry of Cover granted for a Short-period Insurance.*—This needs little comment—except that the cover under a Protection Note might not be held to expire until 12 midnight of the date named, for the Conditions do not cite an hour for expiry of the contract, and the Policy recital, which generally does so, is not incorporated in the Protection Note.

It has been held in *Macnally v. London Assurance Corporation* that an action in connection with a loss during the currency of a Protection Note must be brought under the Policy, but this would hardly be enforced if, by so doing, the plaintiff would lose

his benefit, through the operation of the Policy recital, in the event of a fire after 4 o'clock on the day of the expiry of the Protection Note.

Another point is that if a proposal for, say, a week were submitted and a protection issued without any time limit, or with the usual 30 day limit, the Company would hardly be held responsible beyond the time for which only it was proposer's express desire that such liability should extend.

A P P E N D I X.

CASE A.—*Adie & Sons v. The Insurances Corporation Ltd.*
(in liquidation, 1898).

In the Queen's Bench Court, on the 25th July, 1898, Mr. Justice Bingham heard the claim in this action, which was for £275 for a loss under a Policy of Fire Insurance. The plaintiffs were the owners of certain business premises at Voe, Shetland, which they had insured with the "Yorkshire" Fire Company, and also with two other Companies, each Company being liable for a rateable proportion of any loss. The "Yorkshire" Company's Policy expired in November, 1896. On February 15th, 1897, the plaintiffs wrote to the defendants enclosing a copy of the "Yorkshire" Policy—"Kindly advise us if your Office will take up the 'Yorkshire' portion." This letter was received by the defendants on February 18th, on which day they answered—"Proposal £1,972 10s. We are prepared to accept the above amount. We have sent the papers to our Glasgow branch to be dealt with there." On February 19th the Glasgow branch wrote to the plaintiffs—"The Head Office have forwarded to us your favour of the 15th inst. for attention, and have intimated their acceptance of the proposal. . . . We will let you have our Policy as early as possible." On February 20th the plaintiffs' premises were burnt down, and on February 24th they wrote to the defendants informing them of this, saying—"It is, therefore, needless to draw your Policy at present." This letter was not received by the defendants until March 1st. Meanwhile, on February 26th they had executed the Policy and sent it to the plaintiffs. The Policy was dated as from February 18th. On receipt of the Policy the plaintiffs sent a cheque for the first year's premium. The defendants refused to accept it, and demanded the return of the Policy. The defence raised at this action was that at the date of the fire there was no binding contract to issue a Policy of Insurance, and that on February 24th the plaintiffs had withdrawn their proposal.

Mr. Justice Bingham, in giving judgment, said that in his opinion the defendants ought to pay this claim, and were bound in law to do so. The plaintiffs' letter of February 15th was a proposal to the defendants to effect the Insurance which had previously been effected with the "Yorkshire" Company, and on the same terms. It was clear that the defendants read that letter in the sense of a proposal. There having been a proposal, the only thing necessary to make a binding contract was that the proposal should be accepted, and on February 18th the defendants wrote

their letter of that date, which was an acceptance. The position then was that the plaintiffs were bound to pay the premium, and the defendants to issue a Policy in the ordinary form employed in their Office, and it was immaterial that the parties had not discussed and expressly agreed to every individual term of the Policy. The fire occurred on February 20th, and under those circumstances the defendants were clearly liable. It was suggested that the plaintiffs' letter of February 24th somehow affected the matter. That letter seemed to have been written under the mistaken notion that there was no contract binding on the defendants, but when it was ascertained that there was a binding contract the legal position of the parties could not be affected by any subsequent letters. There would be judgment for the plaintiffs. (See *Post Magazine*, 1898, page 573.)

CASE B.—*Roberts v. Security Company, Ltd.*

In the Supreme Court of Judicature, Court of Appeal, before the Master of the Rolls, Lord Justice Lopes, and Lord Justice Rigby, on the 30th November, an appeal was heard by the defendants from the judgment of the Divisional Court (Mr. Justice Grantham and Mr. Justice Wright) affirming the decision of the County Court Judge of Leeds. The action was upon a Policy of Assurance against loss by burglary and housebreaking. The defence was that no concluded Contract of Insurance had been effected. The plaintiff on December 14th, 1895, signed a proposal form for an Insurance for £167, the form stating that he agreed to accept a Policy subject to the usual conditions prescribed by the Company, and endorsed on the Policy, and on the back of the form there was a statement that no Insurance would be considered in force until the premium had been paid. The premium was 9s. 11d. to January 1st, 1897, and 9s. 9d. for each year afterwards, the extra 2d. in the first premium being for the few extra days. No premium was ever paid. On December 18th a Protection Note, signed by the Company's agent, was given to the plaintiff stating that the plaintiff had paid to the agent the sum of £ (left blank), and declaring him to be provisionally protected against loss arising from burglary and housebreaking (subject to the conditions contained in and endorsed on the form of Policy used by the Company) for seven days from this date, or until the proposal be in the meantime declined. The seven days expired on Christmas Day, and on the night of December 26th or the morning of December 27th a burglary was committed at the plaintiff's house. On December 27th, at a meeting of the Directors of the Company, who were in ignorance that a burglary had been committed, the seal of the Company was affixed to the Policy, and the Policy was signed by two Directors and the Secretary, insuring the plaintiff

against loss by burglary and housebreaking from noon of December 14th, 1895, to noon of January 1st, 1897, the Policy reciting that the first premium (9s. 11d.) had been paid by the assured to the Company. One of the provisos in the Policy stated that no Insurance by way of renewal or otherwise should be held to be effected until the premium due thereon should have been paid. The Policy never left the Company's Office. The plaintiff, in his evidence, said that the only reason why he did not pay the premium was that he was never asked for it. The County Court Judge gave judgment for the plaintiff. The Divisional Court affirmed this judgment.

The Court dismissed the appeal.

The Master of the Rolls said that if the matter had stopped at the proposal for Insurance and the acceptance of the proposal, they would have had to consider the effect of that proposal and acceptance. But the matter had gone beyond that. A Policy had been signed and sealed on December 27th, 1895. What, therefore, would have been the effect of the proposal and acceptance became immaterial? Was this a conditional Policy? There was no suggestion that the Company delivered it to their Secretary to hold as an escrow—that is, until some condition was fulfilled. The Policy, therefore, being executed by the Company, and no condition being attached to it, it was a concluded Policy. They must, therefore, construe it so as to see how it applied. Upon its true construction it insured the assured from December 14th, 1895, to January 1st, 1897. What was the argument against that? It was said that the recital that the premium had been paid was untrue, and the Company proposed to show that it had not been paid. In the first place, the Company was not at liberty to show that against their own act and deed. But the best mode of dealing with the argument was to say that the Company had treated the premium as paid, and had, therefore, waived the prepayment of the premium. The Company could not get rid of their liability after having executed the deed, and after the loss had happened, merely by saying that the premium had not been paid.

Lord Justice Lopes concurred. The Company sought to go against their own solemn statement in the Policy that the premium had been paid, but, in his opinion, they were estopped from doing so; and even if there were no estoppel, there was clearly a waiver of the prepayment of the premium. The executed Policy was conclusive proof of a concluded agreement. In his opinion, if the assured the day after the execution of the Policy had gone to the Company's office and tendered the premium, and demanded the Policy, the Company would have had no answer to his demand.

Lord Justice Rigby said—"I think that even if it were shown—which does not appear to be the case—that the deed was delivered as an escrow, on condition that it should not be handed over to the person who was to benefit thereby until he had paid the premium, the deed would be as good a deed, whenever the condition was performed, as if it had been originally delivered unconditionally.

It would be open to the assured to tender the premium and demand the deed, and it would make no difference that a loss had then occurred. It seems to me that it would be his right to have the Policy delivered to him, notwithstanding that a loss had happened." (See *Post Magazine*, 1896, page 835.)

CASE C.—*The Equitable Fire and Accident Office, Limited, v. The Ching Wo Hong.*

Judgment was delivered by the Judicial Committee of the Privy Council in this appeal on the 19th of December, 1906. The Insurance Company appealed from a decision of His Britannic Majesty's Supreme Court for China and Korea, sitting at Shanghai.

In October and November, 1904, the respondents effected two Policies of Fire Insurance with the appellant Company upon goods in their shop at Shanghai. A fire took place on the 5th of December in the same year. Four or five days before the fire the assured had taken out another policy on the goods with the "Western" Assurance Company, but on this Policy no premium had been paid. The appellants denied liability on their policies on the ground that they had become null and void, both containing a clause to the following effect:—"No additional Insurance on the property hereby covered is allowed except by the consent of this Company endorsed hereon. Breach of this condition will render this Policy null and void." A further clause required notice to be given to the Company of any other Insurance or Insurances made elsewhere, this to be a condition precedent to the recovery of any claim under the Policies. For the respondents it was contended that there had been no effective Insurance with the "Western" Assurance Company, whose Policy contained a condition providing that it would not be in force until the premium or a deposit on account thereof was actually paid, nor would the Company before that event be liable in respect of any loss or damage. No part of the premium was in fact paid; the "Western" Assurance Company repudiated liability, and no attempt was made to enforce any claim under the Policy.

The judgment of the Judicial Committee (present—Lords Macnaughten, Davey, Robertson, and Atkinson) was delivered by Lord Davey. Their Lordships did not attach any importance to the fact that the "Western" Assurance Company's Policy had been handed to the respondents. In their opinion this did not operate as a waiver of the condition endorsed on the Policy making prior payment of the premium necessary to liability. This condition was part of the contract, and no Insurance had therefore been effected of which it was necessary that notice should be given to the appellant Company. Their Lordships

would humbly advise His Majesty that the appeal should be dismissed and the judgment of the Court below in the respondent's favour affirmed. (See *Post Magazine*, 1907, page 9.)

This is an important case, and it is, therefore, well to have before us the wording of the documents. This I am enabled to give, as follows, through the courtesy of the "Western":—

EXTRACT OF THE "WESTERN" POLICY RECITAL.

"THIS POLICY OF INSURANCE WITNESSETH that
..... (hereinafter called the Insured) having paid to the
WESTERN ASSURANCE COMPANY (hereinafter called the Company)
the sum of for Insuring against
Loss or Damage by Fire, as hereinafter mentioned, the Property
hereinafter described, in the Sum or Several Sums following, viz.:—

.....
THE COMPANY hereby agrees with the Insured (but subject to the
Conditions on the back hereof, which are to be taken as part of
this Policy) that if the Property above described, or any part
thereof, shall be destroyed or damaged by Fire, at any time
between the day of 190 , and four o'clock
in the Afternoon of the day of 190 , or
(in case of the renewal of this Policy) at any time afterwards, so
long as, and during the period in respect of which the Insured
shall have paid to the Company, and they shall have accepted,
the sum required for the renewal of this Policy, the Company
will, out of their Capital,

COPY OF "WESTERN" PREMIUM PAYMENT CONDITION.

"This Insurance will not be in force until, nor will the Company be liable in respect of any Loss or Damage happening before the Premium, or a deposit on account thereof, is actually paid, and no such payment or deposit, and no payment in respect of the renewal of this Policy, shall be good unless a printed form of receipt for it, issued from the Office of the Company and signed by one of the Company's authorised Officers or Agents, shall have been given to the Insured."

WORDING OF RECEIPT ISSUED ON PAYMENT OF PREMIUM.

Mr. Shanghai.

Dr. to WESTERN ASSURANCE Co.

To premium on Policy No.

From to

Sum Insured @ (rate) = (premium.)

Received payment.

.....

(Signed) Agents.

CASE D.—*Isaacs v. Royal Insurance Company.*

The question was considered in 1870 in the case of *Isaacs v. The Royal Insurance Company*, upon a six months', but renewable, policy on goods at Lima. The Policy was renewable from six months to six months, and similar Insurances had been repeatedly renewed, but no days of grace were allowed, and no question was raised respecting them. The Policy provided "that from the 14th day of February, 1868, until the 14th day of August, 1868, and so long as the Assured should pay and the Directors should accept" the half-yearly premium, the Insurance should continue in force "subject to the conditions thereon endorsed." One of the conditions provided "that persons desirous of continuing annual Insurances must make their respective payments of the premium on or before the commencement of each succeeding year." The property was destroyed between 11 and 12 p.m. on the 14th day of August, 1868. The questions to be decided were—as to the meaning of the word "until": whether the 14th of February and the 14th August were both or only one, and then which, included in the Policy? It was decided that the last day certainly was so. The Office was, therefore, liable for the loss. It would, without doubt, have been held equally liable if the loss had occurred on the first day, so that the six months' Insurance, in fact, covered a fraction of time more than six months. It was pointed out by the Lord Chief Baron that the contention of the insurers must be incorrect since, while it was agreed that the Policy should be renewable and the intention was that it should be continued, their construction would leave the insured always uncovered on the day appointed for payment of the renewal premium. No question was raised as to the termination of the risk, except at the end of the day, probably because the law takes no note of fractions of a day, and the Court refused to recognise the suggestion that if the premium had been actually paid on the 14th day of August the whole day would have been covered, although the property had been burnt before the premium had been paid. (See Bunyan, 5th Edition, pages 180-1.)

CASE E.—*Salvin and Others v. James.*

In the case of *Salvin and Others v. James and Langston*, Managers of the "Sun" Fire, which was before the King's Bench (1805), the point turned upon the days of grace allowed under the Company's advertisement of 1794; but in this case the Office, before the expiration of the year of insurance, had given notice that it would not continue the risk unless an increased premium was paid, and the insured replied that he would not pay it. Within the 15 days a fire arose, and the premium had not been paid; it was tendered after the fire, but not accepted. Held that the Company was not liable. (From Walford's Encyclopædia.)

CASE F.

“ ‘Sun’ Fire Office, 10th July, 1794.

“In consequence of several applications, the Managers of this Office do hereby inform the public that all persons insured in this Office by Policies taken out for one year or for a longer term are, and have always been, considered by the Managers as insured for 15 days beyond the time of the expiration of their Policy, but this allowance of 15 days does not extend to Policies for shorter periods, which cease at 6 o’clock in the evening of the day of the expiration of the time mentioned in the notices.

“HUGH WATTS, Sec.”

The printed “proposals” of the Company, which then formed the condition of the insurance, contained a corresponding provision in these terms:—

“On bespeaking Policies, all persons are to make a deposit for the Policies, stamps, duty, and mark, and shall pay the premium to the next quarter-day, and from thence for one year more at least, and shall, as long as the Managers agree to accept the same, make all future payments annually at the Office, within 15 days after the day limited by their respective Policies, upon forfeiture of the benefits thereof, and no insurance is to take effect till the premium be actually paid by the insured, his, her, or their agent or agents.”

There arose in 1805 the case of *Salvin v. James and Others* (Managers of the Sun Fire Office), in which the Company was sued under one of its Policies issued in pursuance of the foregoing provisions, and it was held (by Lord Ellenborough) that the effect of the advertisement and condition together was to give the parties an option during 15 days to continue the contract or not: with this advantage on the part of the insured, that if a fire happened during the 15 days, though he had not paid his premium, the Office should not after such loss determine the contract; but that this did not deprive the Company of the power of so doing at the end of the term by making their option within reasonable time before the end of the period for which the Insurance was effected, as they had done in this particular instance. Further, that when the premium was received the effect of it was to give the insured an insurance for another year—to be computed from the end of the preceding year and not of the 15 days.” (From Walford’s *Encyclopædia*.)

CASE G.—*Simpson v. Accidental Death Insurance Company.*

In the case of *Simpson v. The Accidental Death Insurance Company* there was no qualifying advertisement, but the Policy, which was an insurance against accident, secured the payment of the sum assured within the current year, or subsequent

thereto during the continuance of the policy, provided the insured paid the annual premium within 21 days after the date in every succeeding year, so long as the acting Directors for the time being of the said Company should accept the same, but subject to the conditions endorsed. Of these conditions there were three material to the contention, the first providing that on payment of the premium within the 21 days the Policy should not be void, notwithstanding the happening before the expiration of the 21 days of the event insured against; the second providing that on non-payment within the 21 days the policy shall be forfeited; and the third that in every case when a new premium should become payable the Directors should be at liberty to terminate the risk by refusing to accept it. The assurer died of an accident within the 21 days. His executors and the Office corresponded on the footing of the policy having become a claim, neither at first knowing that the premium had not been paid to the agent. The Office became aware of this before the expiration of the 21 days, but did not communicate the fact, and on the 22nd held a special board and repudiated their liability. On the authority of the above-cited cases the Court held the Policy to have been voided by the non-payment of the premium, and that there were no equitable grounds for a contrary decision arising from the course pursued by the Office in failing to communicate the non-payment of the premium. The Court considered that the provision entitling the assured to pay the premium did not give the same right to his executors, and that neither the executors nor the assured, if alive, had the absolute right to keep the Policy in force by payment or tender of the premium within the 21 days, the condition giving the Directors the right of keeping alive or renewing the policy or refusing to do so at their pleasure. When this decision became known the daily Press took up the subject, and much alarm was expressed by the public, and the same course was pursued by the Offices as on the former occasion, most of the Companies, both fire and life, advertising that they held their insured secure during the days of grace allowed by their policies. But, nevertheless, if a fire occurs during the 15 days, the assured should instantly tender the premium to the Office, as unless its terms went expressly to this extent, it might not after their expiration be bound to accept it. (See Bunyan, 5th Edition, page 177.)

CASE H.—*Pritchard v. Merchants' Company.*

In the case of *Pritchard v. Merchants' and Tradesmens' Mutual Life*, which came before the Courts in 1858, the facts were as follows:—The policy was by way of reinsurance to the United Mutual Mining Company (of which Pritchard was the Managing Director), in respect of a portion of a risk that Company had taken upon a life. The original Policy contained a provision for 30 days

grace. An annual premium became due on 13th October, 1855. The 30 days' grace expired on 12th November, on which day the life insured died. On the 14th November the plaintiff sent the Merchants' and Tradesmens' Company a cheque for the premium. On the following day the cheque was cashed, and a receipt sent as for "the premium for the renewal of the Policy to October 13, 1856, inclusive," both parties being then ignorant that the life originally Insured was then dead:—Held that the payment did not under the circumstances revive the policy. It appeared to be the view of the Court of Common Pleas that, the contract being for payment of the sum insured on the future event of the death of the life insured, a payment of the premium within the 30 days, but after the death, would not be a payment within the Condition. (From Walford's Encyclopædia.)

CASE I.—*M'Dowell v. Carr.*

In the case of *M'Dowell v. Carr* before the Irish Courts in 1833, a Policy for a year had been granted with a condition that "No Policy will be considered valid for more than 15 days after the expiration of the period limited therein unless the premium," etc., are paid, and in case of insurance for a less period than a year, they "will terminate at 6 o'clock in the evening of the day specified, without the allowance of 15 days":—Held to be in effect an insurance for one year and 15 days. (From Walford's Encyclopædia.)

CASE K.—*Thompson v. Adams.*

In the case of *Thompson v. Adams*, the defendant, an underwriter at Lloyds, initialled a slip in October, 1887, accepting a share of a fire risk. No Policy was put forward, nor any premium paid, down to the end of February, 1888, when a loss was notified. The defendant claimed, *inter alia*,

(1) That the contract was subject to an implied condition that, within a reasonable time, a Policy should be put forward for signature; and

(2) That the conduct of the plaintiffs and their agents showed an intention to abandon the insurance, and that it was a breach of good faith, on their part, to put forward a Policy which would never have been put forward if the fire had not occurred.

It was held, however, that the slip was not subject to an implied condition that a Policy should be put forward within a reasonable time, and that, taking into account the explanations given of the long delay in putting forward the Policy, there was clear proof of a mistake, but no evidence of an intention to abandon the insurance, or of *mala fides*. (Bunyan, 5th Edition, pages 113 and 114.)

CASE L.—*Levy v. Scottish Employers Insurance Company.*

In this case, in the King's Bench Division, 30th January, 1901, a proposal was made on 28th May, 1900, when a cover note was issued acknowledging the first premium of £5; on this appeared the words "Held covered for 14 days from date hereof, subject to the conditions of the Policy, unless the proposal be previously declined." On the proposal were the words "The proposed insurance shall not be binding on the Company until a Policy shall be issued in respect thereof." It was mentioned that the agent stated when the proposal was signed, "You will be insured right away. If you do not hear in 14 days you may treat yourself as insured." On the 16th June following the proposer was injured in a railway accident and sent in a claim. The proposal had been declined by the Company on receipt, but the agent had failed to duly communicate the circumstance to the proposer. The Company mainly relied upon misstatements in the proposal, and were successful. Mr. Justice Phillimore, in his judgment, said that at the date of the claim there was, in his opinion, no contract of insurance for three reasons: In the first place, there was no evidence that the agent ever contracted to insure the plaintiff (*i.e.*, evidently beyond the 14 days); secondly, there was no evidence that he had authority from the Company to do so; and thirdly, if there was evidence of a contract by the agent it ought to be put aside on the ground that it contradicted the terms of the written documents. (See *Post Magazine*, 1901, page 122.)

CASE M.—*Wylie & Lochhead v. Times Insurance Company.*

On 18th August, 1857, an agent of the Times Insurance Company granted to Messrs. Wylie & Lochhead a deposit receipt insuring their property in Argyle Street for £1000 for 14 days, and £1 was paid as a deposit. The agent forwarded the order to Company's surveyor, who at once wrote to the agent declining the proposal. The agent, instead of advising the owners, tried to place the order with other Offices, but failed to do so. On the evening of the 1st and the morning of the 2nd September the building was burned down. The Times Company, considering that the 14 days had expired, and that the agent was alone responsible, refused to admit liability, but the jury gave a verdict against the Company for £1000, and the Court allowed the Insurance Company the right of subrogation against their agent, which, of course, was never exercised. Subsequently the Court, in adjudicating as to the costs, decided that the expense of stamping the deposit receipt should be borne mutually. This case shows the necessity of advising the proposer of the insurance as well as the agent when a risk is declined. (See *Transactions of the Insurance and Actuarial Society of Glasgow*, Second Series, pages 3 and 4.)

FLUCTUATIONS IN SECURITY VALUES.

By WM. SMITH NICOL, F.F.A.,
General Manager, City of Glasgow Life Assurance Co.

*A Paper read before the Insurance and Actuarial Society of
Glasgow, 4th November 1907.*

THE whole superstructure of Life Assurance is based on the premiums charged. These premiums assume a limit of mortality and expense, and a minimum rate of interest. A further important element has in the last few years assumed a new significance. Banks and Insurance Companies, up to within the last ten years, were so accustomed to market values showing a margin over book-prices that the permanence of this condition of things was then taken for granted. The inner reserves of old-established concerns were regarded with envy by those whose whole investments had to be made at the then prevailing low rates of interest. A fall in the average rate of interest earned by Insurance Companies had taken place steadily from £4 11s. 3d. in 1870 to £3 18s. 1d. in 1898. Wise in their generation, Insurance Companies had prepared for this by successive reductions in the rate of interest assumed in their valuations. The drop in the interest yield had been gradual and continuous; all signs were in the direction of a further fall, and the one great anxiety of those responsible for the remunerative employment of the funds was to secure such a return as would make possible the maintenance of past rates of bonus. So much was the lower rate of interest taken for granted that almost more than an academic interest attached to a table of rates, given by Mr. Sorley in an address delivered in 1895 to the Actuarial Society of Edinburgh, of premiums based on the assumption of no interest at all. Not, indeed, that anyone, even then, thought we were likely ever to reach a time when the funds of a Life Insurance Company would consist simply of an accumulation of golden sovereigns, which

would be added to by the annual premiums and diminished by the claims and expenses. But while the reminder that *nil* per cent. premiums were feasible was a reassuring thought, in relation to the permanence of Life Insurance as an institution, even under changed conditions, still it brought little comfort to those who, with the old cloth, in the shape of fixed premiums, had to carve out bonuses by the aid of a shrinking rate of interest. The position of a Life Company being that it has undertaken to pay in sterling certain sums of money in the shape of sums assured, with, in most cases, additional sums by way of bonus—the liberality or otherwise to these additional sums forming a main factor in the public estimate of the Company's wares—profitable use of the funds is imperative—always, however, on the fundamental assumption of the preservation of the funds themselves intact. Actual intentional damage, by way of theft or fraud, I do not pause to allude to, but injury may quite well arise which is unintentional or even unavoidable, as even those entrusted with the care of the investments of Insurance Companies are only human after all, and those who never make mistakes, we are told, run a very great risk of never making anything else. All the same, injury through unwise or, as it may turn out, unfortunate selection of a mortgage or investment may be regarded as likely to be of comparatively small extent. Life Companies are in the happy position of never having to make a forced realisation of their securities; and even if for a time an investment passes under a cloud, the selection will originally have been made with such a regard to security that, in their case, by their power to wait and select their own time for realisation, a loss which might have been inevitable and serious to a private investor can be either entirely or in great part avoided. The probability of avoiding loss is greatly increased by constant supervision and periodical stocktaking. Whereas the private investor, having once selected the channel for his investment, thinks no more about it, beyond seeing that his annual return duly comes to hand, Insurance investments have the benefit of a continuous regard not only to the receipt of the income, but to the far-reaching effects of causes which may impair the security either of the capital or the income, or both. By a wise reading of the financial sky, a deteriorating investment can be parted with, if not when the portent is no larger

than a man's hand, then, certainly, at least a long time before the outburst which, as a rule, is required to arouse the investing public. Especially at investigation periods, this investment stocktaking is carefully gone into.

As you know, Life Insurance in this country is carried on under the regulations of the Life Assurance Companies' Acts, 1870 and 1872. One of these regulations is that each year the Companies must furnish to the Board of Trade a revenue account and balance-sheet in specified forms. The form of balance-sheet is as follows:—

Balance Sheet of the		on the	
LIABILITIES.	£ s. d.	ASSETS.	£ s. d.
Shareholders' Capital paid up (if any) £		Mortgages on Property within the United Kingdom	
Assurance Fund		Mortgages on Property out of the United Kingdom	
Annuity Fund (if any)		Loans on the Company's Policies ..	
Other Funds, if any, to be specified		Investments—	
Total Funds as per First Schedule .. £		In British Government Securities ..	
Claims admitted, but not paid ..		Indian and Colonial Government Securities	
Other Sums owing by the Company (Accounts to be specified)		Foreign Government Securities ..	
		Railway and other Debentures and Debenture Stocks	
		Do. Shares (Preference & Ordinary)	
		House Property	
		Other Investments (to be specified)	
		Loans upon Personal Security ..	
		Agents' Balances	
		Outstanding Premiums	
		Do. Interest	
		Cash—	
		On Deposit £	
		In Hand and on Current Account	
		Other Assets (to be specified)	
	£		£

When the 1870 Act was passed a very much larger proportion of the funds of the companies was lent on mortgage than is now the case. In the interval, too, the fashion in investments has undergone great changes. Securities have become, for one reason or another, unsuitable. Great developments in all parts of the world have taken place, new securities have come into existence, and others into greater prominence. One result of this is that the specified form of balance-sheet has, as regards the assets, become no longer so suitable as it might be. The entry—*e.g.*, Railway and other Debentures and Debenture

Stocks—may cover such widely different securities as London and North-Western Railway Debenture Stock, with a yield of little over 3 per cent., and the Debenture of a trading company yielding between 5 and 6 per cent.

Whereas, too, under former conditions, the bulk of the fund, were lent on mortgage, and the specific amount originally lent was the amount to be looked for on repayment of the loans a greatly increased proportion is now in most cases invested in marketable securities—these being either terminable or permanent—the interest being fixed, but the price to be obtained in the market for the security itself varying greatly.

Not only has there been a change from mortgage to marketable investment, but also a change in the selection of investments themselves. No two Companies follow precisely the same line of preference, but in one direction or another a better yield has in recent years been aimed at, and, generally speaking, has been got. This improvement was being secured before the 1907 shrinkage in values, as to which I shall speak later, had occurred.

In giving evidence before the House of Lords Committee on Life Insurance Companies in July, 1906, Mr. Robert Lewis, the General Manager of the Alliance Assurance Company, suggested that there should be a further sub-division of classes of investment, and that the market value of each class should be stated, as well as the book value—that is to say, that we should have, for each group of investments, a clear statement of the market value and of the book value, so that the public may obtain annually more complete information of the nature and of the actual value of the investments than need be supplied as the schedule to the Act now stands. This recommendation, in effect, formed one of the findings of the Committee.

A variation in the price of a gilt-edged security is not generally to be regarded as a change in the public estimate of the safety of the principal. The really significant element is the annual return with which an investor will be satisfied for the use of his money. This point cannot be too clearly grasped. Of course, there are other elements affecting prices; of some of these we shall speak immediately. Meantime, however, I wish to emphasise the one great fact that, just as regards a commodity such as wheat, so as regards working capital or

credit, the price will now be high and now low, according as the supply is short or in excess of the demand. If, for example, there is a widespread practice of thrift, little unremunerative expenditure—not to speak of absolute destruction of capital in war—comparative absence of industrial expansion or activity, the price, that is, the rent of capital, will be low, and, concurrently, the market value of a security representing a certain fixed income will be high. If, on the other hand, there has been what Sir Edgar Speyer described as individual, municipal, and national extravagance, accompanied by a war expenditure, crowded into a few short years, of close on a thousand millions sterling, and if accompanying or immediately following this there is an almost unparalleled world-wide expansion and briskness in trade, can we wonder if the rent of capital shows a decided tendency to rise?

Seeing that the value of capital to an Insurance Company, as to an individual, is largely the income which can be derived from it; seeing, also, that its investments show an increasing tendency to be made for long periods, instead of in mortgage which may be paid off, and seeing that the maintenance of the rate of interest for a long period, on at anyrate the existing funds, is assured, moderate fluctuations in the market prices of its securities can be regarded with indifference, so long as these are caused by money market influences, and not by any variation in the intrinsic merit of the securities themselves. Not only so, but the prevalence of low prices is really more convenient for the Company than high ones, as, apart from fresh funds available for investment, there are always, from time to time, old investments being repaid. While this is so, however, it is obvious that the current prices of securities cannot be altogether ignored, for, though the rise and fall may be due entirely to general money market conditions, on the other hand the market may have grounds for revising its estimate in individual cases.

The test may err on the side of severity, but it is one which Insurance Companies are content to have applied—the test, namely, that the standard of value of their assets shall be the market price at date of valuation. When the values are less the book prices are written down, but when the values are more the book prices are not written up. Over a series of years an inner reserve is thus built up, and the surplus in normal times may be very considerable.

An excellent idea of the probable result of this test, at any particular time, is got by an inspection of the "Bankers' Magazine" representative values. This magazine has, for many years, shown the aggregate monthly value of 325 selected securities. The number has recently been increased to 387. The selected securities embrace many which an Insurance Company would not hold, and the presence of these has an influence on the aggregate value which somewhat impairs its suitability as an indicator for us, but in the main it is an admirable barometer. The following are the total values in December of each year from 1896 to 1906 :—

AGGREGATE VALUES OF "BANKERS' MAGAZINE"
325 REPRESENTATIVE SECURITIES.

December, 1896,	.	.	3,198	millions sterling
„ 1897,	.	.	3,276	„ „
„ 1898,	.	.	3,241	„ „
„ 1899,	.	.	3,121	„ „
„ 1900,	.	.	3,102	„ „
„ 1901,	.	.	3,064	„ „
„ 1902,	.	.	3,084	„ „
„ 1903,	.	.	2,994	„ „
„ 1904,	.	.	3,042	„ „
„ 1905,	.	.	3,078	„ „
„ 1906,	.	.	3,020	„ „

In the eleven years the highest aggregate was 3,296 millions, in April, 1899, and the lowest 2,896 millions, in February, 1904—the shrinkage in the interval being 400 millions, or 12 per cent. During 1907 a still lower level has been touched.

The main causes for the considerable fluctuations in price are worth going over in some detail, but before we do so we may refer in passing to a suggestion made by Mr. T. E. Young, an ex-President of the Institute of Actuaries. Writing on this subject in 1904, he said:—"The prices of a particular day in no degree afford a just or adequate measure of the future value of assets which are required to provide—but only in the *future*—for the future obligations as they mature. . . . We would simply indicate our preference for a term of 11 years, since observation and deduction have definitely established that every commercial and financial cycle pursues the varied stages of its evolvment within the currency of that period of time."

The highest of the eleven December aggregates was 3,276, and the lowest 2,994, the average being 3,111. Owing to the

increase in the number of securities the figures for 1907 require adjustment before they can be included. If we substitute 2,749, the adjusted August, 1907, figure, for that of December, 1896, we get an 11-year average of 3,070. In other words, the use of the 11-year average at the end of August, 1907, meant the use of a test less severe by 11.7 per cent. than the actual price of the day.

Let us now go back to the high-water mark of ten years ago, compare the prices then with the prices now, and see if it is possible to come to any conclusion as to whether the 1897 or the 1907 price is nearer the normal.

If we look at the course of prices during the last 20 years we find that as the rate of interest rapidly fell in the first half of that period the prices of securities correspondingly rose, while, during the second decade, prices have fallen again, until, this year, they have apparently lost all sense of responsibility and don't know where to stop. Whether, now, are we to plump for 1897 or 1907? To the consideration of this question I now ask you to give your attention. The future only can show what it has in store for us, but the question is one which is well worth trying to answer.

In making our comparisons we shall, as far as possible, contrast yields rather than prices. The object in doing so will appear as we go on.

Let us see, then, what the yields have been, and, first, let us look at British Railway Debenture Stocks. The yields at quinquennial intervals from 1870 to 1895 were :—

YIELD OF BRITISH RAILWAY DEBENTURE STOCKS.

1870,	..	..	4.15						
				—	.27	=	5/5		
1875,	..	..	3.88						
				—	.24	=	4/10		
1880,	..	..	3.64						
				—	.28	=	5/8		
1885,	..	..	3.36						
				—	.29	=	5/10		
1890,	..	..	3.07						
				—	.42	=	8/5		
1895,	..	..	2.65						
				—	.11	=	2/3		
1896,	..	..	2.54						
				+	.02	=	5d.		
1897,	..	..	2.56						

The yield, in 25 years, fell from £4 3s. to £2 13s.—no less than 30s. per cent. A further fall of 2s. 3d. took place in 1896. Since then there has been a rise, and, in August this year, the yield obtainable was once more nearly as high as £3 10s.

During the five years 1902-7 the prices of the following Foreign Railway Stocks showed only the following slight fluctuations :—

	Points.
Braunschweig Railway, Germany, $3\frac{1}{2}$ per Cent. Bonds,	4
Rudolf Bahn, Austria, 4 per Cent.,	$2\frac{3}{4}$
Chemin de Fer du Nord, France, 3 per Cent.,	$2\frac{1}{2}$
Brussels and Calais Railway (Belgium) Shares,	4

while, during the same period, Great Western Railway Debenture Stock has fluctuated over 20 per cent.

The following table gives the yields for British Government and other high-class securities in August of each of the years 1897, 1902, and 1907, and a very striking table it is :—

	YIELD.		
	1897.	1902.	1907.
	£ s. d.	£ s. d.	£ s. d.
Consols	2 6 3	2 13 0	3 0 6
India 3%	2 13 6	2 19 9	3 10 3
Egyptian Guaranteed 3%	2 16 3	2 19 6	3 2 6
Metropolitan 3%	2 9 9	2 18 6	3 9 3
Glasgow 3%	2 12 9	3 1 0	3 6 0
Canada 3%	2 15 0	2 17 9	3 4 0
New South Wales 3%	2 19 3	3 6 0	3 16 9
London & N.W. Railway 3%			
Debenture Stock	2 10 9	2 19 0	3 9 3

The Public Works Loan Board advanced £1,123,496 in 1906-7 at an average rate of £3 13s. 7d., as against—

£3 3 7	.	.	.	.	in 1901-2,
3 5 1	.	.	.	.	in 1902-3,
3 5 9	.	.	.	.	in 1903-4,
3 9 2	.	.	.	.	in 1904-5,
3 13 0	.	.	.	.	in 1905-6.

Extending our view a little, the next table shows what one may call the comparative price of national credit in various countries in 1887, 1897, and 1907. The yields are those at the end of August in each case :—

YIELD ON NATIONAL SECURITIES.

	YIELD.		
	1887.	1897.	1907.
	£ s. d.	£ s. d.	£ s. d.
Great Britain	3 0 0	2 6 3	3 0 6
France	3 14 6	2 18 0	3 3 9
Hungary	4 19 9	3 17 9	4 7 6
Spain	5 19 3	6 9 3	4 8 6
Egypt	5 7 9	3 15 6	4 0 0
Russia	4 18 6	3 18 0	5 7 3
Holland	3 7 9	2 17 0	3 8 0

At this point it may be well to note that the Bank Rate does not show a downward tendency over a long period of years. To-day the rate is 6 per cent., in contrast with the 2 per cent. rate which ruled for over two years up to September, 1896. Our present experiences bear many points of resemblance to those of 1873. In the corresponding week of that year the rate was raised to 9 per cent. Over the 30 years ending in 1905 the average rate was £3 3s. 8d., the average for the three decades being £3 3s. 3d., £3 1s. 6d., and £3 6s. 4d. respectively.

AVERAGE BANK RATE FOR

	5 years.	10 years.	30 years.
	£ s. d.	£ s. d.	£ s. d.
1876-1880	2 18 4	} 3 3 3	
81- 85	3 8 2		
86- 90	3 11 1	} 3 1 6	} 3 3 8
91- 95	2 11 10		
96-1900	3 4 4	} 3 6 4	
1901- 05	3 8 5		

Lord Overstone, when giving evidence at the time of the passing of the Bank Act of 1844, said :—

“The rise in the rate of interest has been in consequence of the great increase in the trade of the country, and the great rise in the rate of profits, and to complain of the rise in the rate of interest as being destructive of the two things which have been its own cause is a sort of logical absurdity which one does not know how to deal with.” Again, he says :—“I conceive it to be quite impossible to preserve a steady rate of interest. In a country like this, with a highly-accumulated capital, with great enterprise, with a great spirit of speculation, with very extensive commercial relations with all parts of the world, and of a highly manufacturing character also, it appears to me impossible to avoid oscillations in the rate of interest.”

A dozen years ago these words, if one rightly interprets the mind of the time, were no longer thought to apply. There had been, as we saw in the case of British Railway Debenture Stocks, such a steady rise in quotations, over a period of a quarter of a century, and this rise had been so gradual, that the price-level reached in 1897 came to be regarded as the natural, inevitable, and permanent one. Even in 1899, in a paper read to the Institute of Actuaries, it was said—“The greatest authorities are agreed that the rate of interest will fall still lower in the future.” . . . “It is said by some ‘a great war will completely change the present conditions’; but do we believe that such will ever happen?” That was in January; in September of the same year we were at war with the Boers.

The President of the Institute of Actuaries, on the same occasion, said :—

“The power was not given them to forecast what was going to happen in the future. So long as savings increased without a sufficient outlet, so long, he was afraid, would the rate of interest fall; but whether the time was coming when some great enterprise would absorb any of those large funds, or some gigantic war would destroy accumulations of capital, they were unable to foretell, and he was afraid they could not look ahead with certainty beyond a few years. Their hope might be that something would occur, such as a great development of electricity, which would employ large funds, similar to what had been done in the past by railways; but it could only, he was afraid, be a pious hope.”

Looking back now, we are beginning to realise that the position of the money market in 1895 and 1896 was wholly abnormal, and that the price of every security with a fixed yield must depend, in the long run, on the value of money, that is, on the price of working capital or credit, more than on any other individual influence. In the ten years preceding the long-continued 2 per cent. Bank-rate the annual output of gold was doubled. There was a pause, owing to crises of one kind or another, in the industrial and agricultural development of the countries then making the most rapid material progress—viz., Argentina, Australia, and the United States. The prices of raw materials were also very low. The wonderfully-perfected machinery of credit in London enabled the otherwise idle resources to be used in fostering the carrying of Consols and kindred securities at quite nominal rates. Not only was there a clear profit from an income point of view; there was the attraction of a possible profit from the rise, in view of the then upward tendency of Consols. The more artificial support of this kind there was, the more pronounced was bound to be the fall when the speculative factor was eliminated, as it, of course, eventually was.

We shall deal in greater detail with the abnormal position ten or twelve years ago, and with the main happenings since. Meantime, however, let us look further back.

Half a century is a long time to an individual, but it is only a very short time in the history of a nation or of the world; but in the history of finance the last fifty years have proved to be epoch-making. The Limited Liability system was before that unknown. In former years British, and British stocks only, were looked on as really safe. To-day they are being avoided like the plague. Owing to an aggregation of favourable circumstances, Great Britain was the first to secure the full advantage of the marvellous industrial development of the 19th Century. But her commercial sway is undisputed no longer. Germany has become a great industrial nation. In the Far West and the Far East, first new and then old nations have vigorously asserted their claim to a foremost place in the commerce of the world—nations, too, as persevering, as enterprising, as resourceful as we, in former days, at any rate, were.

But, though her commercial and industrial pre-eminence has been challenged, there has, so far, been no lasting menace to

Great Britain's financial supremacy. For more than 50 years she has invested abroad nearly as much as all the other leading countries put together. We were thrifty, we were enterprising and progressive, we were willing to go to almost any part of the world, or have our capital used there, and our experience thus gained enabled us to do this with advantage, not to speak of the benefit which, in this connection, was derived from our manufactures. It has been necessary to mention all this, as it has the greatest bearing on the problem before us. To my mind, there is no more significant fact for us to-night than this, that during the past 60 years for only two short periods have our investors been indisposed to find capital freely for other lands. The first of these periods was about 30 years ago, and the second in the early nineties.

Great Britain has provided nearly the whole of the capital expended upon the construction of railways in Australasia, in India, in Canada, in South Africa, in Argentina, in Brazil, in Chili, in Mexico, and in many other countries, and has contributed a large portion of the cost of the United States railways. She has also provided a large amount of the capital by which the wealth of the young countries has been created.

In the seven years, 1884-91, when the British Government, the municipalities, and the railway companies absorbed, on balance, only 54 millions of capital, our investments in Colonial and Foreign securities amounted to about 430 millions. In the seven years, 1897-1904, when the British Government, municipalities, and railway companies absorbed 446 millions of our new capital, we had available for investment in other lands a sum of only about 100 millions. This is indicated by the following table:—

YEAR.	Government Debt.	Municipal Debt.	Railway Capital.	Total.
	In Millions.			
1884	749	187	782	1,718
	— 63	+ 44	+ 73	+ 54
1891	686	231	855	1,772
	— 41	+ 72	+ 68	+ 99
1897	645	303	923	1,871
	+ 149	+ 166	+ 131	+ 446
1904	794	469	1,054	2,317

The following most instructive table gives a statement, in millions, of the world's issues of public loans and new capital, 1871 to 1905 :—

1871	..	624	1,800	360	Average.	1891	..	304	1,616	323	Average.		
2	..	504				1,244	249	2				..	100
3	..	436						3				..	240
4	..	168						4				..	712
5	..	68						5				..	260
						305	402						
1876	..	148	1,244	249	Average.	1896	..	668	2,400	480	Average.		
7	..	316				7	..	384					
8	..	184				8	..	420					
9	..	376				9	..	452					
1880	..	220				1900	..	476					
						258	670						
1881	..	288	964	193	Average.	1901	..	396	3,348		Average.		
2	..	180				2	..	876					
3	..	168				3	..	736					
4	..	196				4	..	576					
5	..	132				5	..	764					
						258	670						
1886	..	268	1,616	323	Average.						Average.		
7	..	200											
8	..	316											
9	..	508											
1890	..	324											

The total for the five years 1901-05 is more than one-third of the total for the preceding 30, the average for that five years being 670 millions, against averages of 305, 258, 402 for the preceding decades.

As regards 1907, and confining our attention to the United States alone, we find that, besides new issues of stocks amounting to 508 million dollars, the total issues of new bonds and notes, from 1st January to 1st July, 1907, amounted to no less than 770 million dollars, of which 503 millions consisted of notes.

In the sixties, seventies, and eighties, large amounts of European capital were invested in U.S. securities. In the later eighties there was a great outburst of enterprise, particularly of railway building, in the West and South-west States especially. The railways were much in excess of requirements. On 31st December, 1893, there were in the

hands of Receivers over 40,000 miles, representing 2,200 million dollars (not including floating debt). This was 24 per cent. of the mileage and 22 per cent. of the capital. Not only so, but the States were subjected, until the end of 1896, to all the disadvantages of Mr. Bryan's silver agitation.

In the later eighties, too, railway extension in Argentina took place on what was then an unwarranted scale. This was followed by the Revolution of the summer of 1890, a Revolution also in Brazil, and the Baring crisis in November.

Australia was likewise the scene of a great outburst of enterprise, accompanied by real estate speculation. Then came the banking crash of 1893, to the dire effects of which were added long years of drought. In India, too, drought and famine were in evidence.

The result of all this was a general distrust of foreign investments, and, in consequence, a special demand for British securities.

Before going on to give in some detail one or two of the causes for the depreciation, and to review, very briefly, the recent history of some specific classes of security, let us hear a few of the explanations given by leading financial authorities of the great fall in prices.

In the "Bankers' Magazine" of November, 1906, there appeared the following. After describing the main forces which have produced the present financial situation, the article said :—

"The losses followed a period of great prosperity, and by reason of the refinement of the credit system arising out of the closer connection of the various international markets the strain did not fall at once with full severity on the centres immediately affected, and the effect of the wastage of capital was hidden for a time. These improvements in the credit system no doubt have their advantages in postponing, alleviating, and, in some cases, even in preventing financial crises; but they have their drawbacks, among which must be included the fact that they often tend to obscure the close connection between cause and effect."

The "Times" about the same time said :—

"Much has been done in recent years to educate the investor and to quicken his intelligence, and to induce him to apply it

to the choice of securities. The stern teaching of experience has been accompanied by the growth and spread of articles in the press—daily, weekly, monthly, and yearly—and in the publication of works, in permanent form, by firms who are outside the Stock Exchange, and consequently not bound by its rules and restrictions.”

M. Leroy Beaulieu, of Paris, a very high economic authority, said recently:—“The development of industrial enterprise has been too fast for available capital. The existing situation in the financial markets offers to capitalists and investors the opportunity, of which they have been deprived during nearly twenty years, of obtaining a suitable return for their invested capital.”

The President of the New-York Bankers' Association said:—“We are in an era of extravagance, both corporate and individual, of extravagance in enterprise, and of extravagance in expenditure—extravagance as much beyond precedent as is our feverish business activity. No matter what the country's book profits are, it cannot accumulate capital without thrift, and to-day thrift appears to be forgotten.

“While not denying that the attitude of President Roosevelt and of many other politicians towards railroads and other corporations, and that the menace of Socialism the world over, have had something to do with the recent great depreciation of high-grade securities, it is unmistakable that the one great cause of this depreciation is the lack of capital to carry on the world's business on the scale now planned. The industrial and financial world has over-reached itself. Although new capital is being created faster than ever before, the supply is not equal to the demand, and the business of the world must slacken for a while.

“The scarcity of capital is attested by the high rates for money. Not until industry has paused, until sufficient new capital can be created to reduce the price of money, will it be safe to proceed at the pace of 1905-6.

“Expansion is not confined to the industrial and commercial world. For years banking liabilities have been expanding out of all proportion to the growth of cash reserves.”

One reason advanced for the fall in security values has been the large increase in the yearly production of gold. Before we

say anything about this, it may be well to remark, in passing, that when prices of securities during the Boer War refused to go back to the high level of a few years before, one of the main arguments used in favour of the probability of a rise was the near resumption of the South African gold output. Now, as I have said, the largely-increased output of gold, when it has come, is blamed in some quarters for the fall.

YEARLY PRODUCTION OF GOLD.

	Millions Stg.		Millions Stg.,
1500 ..	$4\frac{4}{5}$	1880 ..	21
1600 ..	$1\frac{1}{5}$	1890 ..	24
1700 ..	$1\frac{2}{5}$	1895 ..	40
1800 ..	$2\frac{2}{5}$	1900 ..	51
1850 ..	11	1905 ..	77
1860 ..	24	1907 (est.)	85
1870 ..	21		

These figures are very striking—so striking that a very interesting paper was read at the Philosophical Society of Glasgow, last winter, for the purpose of showing that the increased supply of gold, with its consequent depreciation, was at the root of the low prices of gilt-edged securities. The matter is by no means, however, so simple as that.

Adam Smith had said:—"When more abundant mines are discovered a greater quantity of the precious metals is brought to market, and *the quantity of the necessaries and conveniences of life for which they must be exchanged being the same as before*, equal quantities of the metals must be exchanged for smaller quantities of commodities." But to quote Adam Smith in support of the theory that the prices of high-class securities will go down as the output of gold goes up is, to begin with, to leave out of account the all-important qualification as to other things being equal. As the "Economist" very aptly put it recently, "other things never are equal."

We cannot here go into the relation between gold supply and prices of commodities, but it may be useful to look at Sauerbeck's Index Numbers of the prices of 45 commodities (the average of 11 years, 1867-1877, being 100):—

SAUERBECK'S INDEX NUMBERS.

Average 1867-1877	100		
78- 87	79		
86- 95	68		
90- 99	66	January 1907	.. 80
96-1905	68	February	.. 80·7
		March	.. 80
Average .. 1883	82	April	.. 80·7
96	61	May	.. 82·4
1900	75	June	.. 82
1	70	July	.. 81·1
2	69	August	.. 79·4
3	69	September	.. 79·4
4	70		
5	72		
6	77		
(9 months)	7		
	81		

From these figures we see that the average index number for the 20 years, 1886-1905, was 68, whereas the average for 1906 was 77, and for the first nine months of 1907, 81, the production of gold having risen by over 50 per cent. between 1900 and 1906.

In America we are told that—"Due to the enormous and constantly-increasing production of gold in the world, the consequent stimulation of business and the increase in prices of all commodities, the cost of living in the United States has increased 50 per cent. in the last ten years.

"For this reason, the man who ten years ago was satisfied with a return of 4 per cent. is now forced to reinvest his money in safe securities which will net 6 per cent.—the current rate for money—or curtail his living expenses."

Another American writer says:—"A depreciating standard of value, that is, rising prices, operates to make men produce less and expend more. It encourages speculation, and, therefore, discourages productive effort and thrift. What we see to-day on all sides—inefficiency, indifference, recklessness, speculation, graft, extravagance—is, in part, the result of rising prices and their effect upon human beings, *nearly all of whom are anxious to get something for nothing.*"

If, as seems likely, both the output and supply of gold increase in the near future, the value of gold will, other things being equal, depreciate as the quantity increases. The measure of this depreciation will depend on the rise in the average price level. A long-continued rise in the price level is accompanied by high interest rates. High interest rates mean low prices for obligations or investments with a fixed income. Rising prices increase wages and the cost of materials, and, while tending to increase the net profits of concerns owning their own sources of material and supplies, they tend to decrease the net profits of all concerns the prices of whose services or products either cannot be advanced at all or only slowly. Rising prices, consequently, tend to increase the values of securities of companies dealing in commodities.

So far, therefore, as high prices of commodities are the result of increased gold supplies, one may be permitted to say that the prices of securities with a fixed income are adversely affected by more gold, but it is much more safe to be content with saying that these security prices follow the rate of interest they yield, and that this yield depends on the relation between the demand for and the supply of capital and credit.

A great deal has recently been said and written about the price of Consols. In reviewing the price several main facts should be borne in mind:—

1. The conversion in 1889, by which the rate of interest was reduced from 3 per cent. to $2\frac{3}{4}$ per cent. for the fourteen years up to 1903; thereafter to $2\frac{1}{2}$ per cent.
2. The diminished supply, due to the operations of the Sinking Fund and purchases for savings banks, Government Departments, and trustees up to 1899.
3. The new creations of stock in the course of the South African War, the simultaneous diminution of Sinking Fund purchases, and the widening of trustees' power, from 1900 onwards.

The following table gives the amounts of Consols at different dates in the hands of the Government and the public respectively:—

	Interest %	Total.	Held by Govern- ment.	Held by Public.	Price.
		Millions Sterling.			
1887 ..	3	710	180	530	103 $\frac{3}{4}$
1897 ..	2 $\frac{3}{4}$	645	207	438	113 $\frac{7}{8}$
1899 ..	2 $\frac{3}{4}$	635	211	424	111 $\frac{1}{2}$
1907 ..	2 $\frac{1}{2}$	774	213	561	*82 $\frac{1}{2}$

* This is the equivalent of 99 for a 3 per cent. stock.

While, in the eighties, in consequence of large investment abroad, the price then declined, there was still in existence, prior to the conversion in 1889, a strong prejudice in favour of Consols as a family investment. This prejudice or preference got a new lease of life in the nineties from the decline of Foreign and Australian credit. Not only so, but when the effect of this was greatest the price was further inflated by the purchase, for example, on account of the Post Office Savings Bank of 45 millions of Consols, in the years 1894 to 1899, at an average price of nearly 108 per cent.

In violent contrast to this, there were issued, in April, 1901, 60 millions at 94 $\frac{1}{2}$, and, a year later, 32 millions at 93 $\frac{1}{2}$. Of the first of these issues the public were offered 30 millions, and the applications were for seven times that amount. But by far the most remarkable feature of that issue, in the light of to-day, was that the other 30 millions were taken by American and Continental capitalists. Of course, at that time, America had got so rich as to be able not only to indulge in a 2 $\frac{1}{2}$ per cent. stock at 94 $\frac{1}{2}$, but, in addition, to really take the whole shipping, industrial, and financial affairs of this little island under her control. The American financiers very soon got tired of their luxury in Consols. In contrast with the 115 $\frac{1}{4}$ of 1895 and the 94 $\frac{1}{2}$ issue price of 1901, we have this year seen Consols touch 80 $\frac{3}{4}$. The question very naturally arises—"Is this fall peculiar to this country?" The most instructive

form in which to state the answer to this inquiry is to reproduce a table which appeared in the "Financial Review of Reviews" in April last. In this table the average yearly prices of seven different national securities are adjusted on the basis of a uniform 3 per cent. rate for each :—

NATIONAL CREDIT.

AVERAGE YEARLY PRICES ON BASIS OF 3 % RATE.							
	2½ % Consols.	French 3 %	Aust. 4 %	Pruss. 3½ %	Ital. 5 %	Russ. 4 % Rly.	U.S. 4 %
1870 ..	87½	50⅜	..	..	34¼	49	52⅛
5 ..	93½	42½	42	..	47½	62¾	54⅜
1880 ..	99½	83	54½	..	57	57	79¾
5 ..	99	78¾	64¼	76¾	63½	60¾	92¼
1890 ..	104¾	90¾	70½	78¾	65¼	71½	94¾
5 ..	115¼	100¾	76½	78⅝	65	75½	92⅛
1900 ..	109	100	73	81½	70	74¼	102¾
5 ..	107¾	98½	75¼	85¼	77¾	66¼	101¼
Ap. 1907	102	95	75	81½	75	57¾	100½

It is interesting to go back to an opinion, given in the "Nineteenth Century" for April, 1896, of the reasons for the then high price of Consols. The high price was stated to be due mainly to the following causes :—

1. Temporary. (a) Timidity of investors; (b) cheapness of money.
2. Permanent and natural. The gradual decline in the loan value of capital.
3. Artificial. (a) The diminished supply of Consols due to operations of Sinking Fund; (b) increased demand for Consols by Government Departments and trustees.

The first and third were described as "temporary and artificial," in contrast to the second, which was "permanent and natural." How little permanent and natural, we are to-day realising.

To these causes we may add :—

1. A pause in trade expansion.
2. Low prices of commodities.
3. Absence of war expenditure.

The subsequent relapse has been assigned, according to the taste of the critic, to various individual causes. As the "Statist" has well put it, however, "A phenomenon can be but rarely traced to one cause; usually it arises from a combination of causes of widely differing character, which, occurring separately, would have no appreciable influence, but events happening simultaneously, or almost simultaneously, have a quite unexpected result."

It may be left, for example, to each individual to put his own estimate on how far the Socialistic and confiscatory leanings of the Labour Party and the Government now in power have affected the price.

The reduction in the rate of interest in 1903 was perfectly well known beforehand, but there appears to have survived the ancient reverence for Britain's premier security, and the belief that, just as when the income was $2\frac{3}{4}$ per cent. in 1897, the price was 114, compared with the price of 104 ten years before, when the income was 3 per cent., so even a further reduction to $2\frac{1}{2}$ per cent. was certain to have no unfavourable effect on the price. It was unfortunate for the price that the date of the reduction should have been the time when the large mass of new issues of Consols overhung the market; not only so, but the rate of income tax in 1903 was as high as 1s. 3d. No wonder that foreign holders threw their recently-acquired holdings back on London. What would have happened had the reduction in the rate of interest taken effect under different financial conditions it is useless to surmise. The fact is that the cumulative effect of causes operating in the one direction has sent the price down to this year's figure.

It has recently been the fashion to run down all British investments, and what were formerly described as gilt-edged or high-class securities have now come to be scornfully termed

“poor yield” securities, and it has been said that the true position of trustee stocks “is obscured by a mass of superstition.”

Until 1859 investments by trustees were legally restricted to Government stock, *i.e.*, 3 per cent. Consols. Lord St. Leonard’s Act, passed in that year, and its amendment of 1860 greatly widened the avenues for the disposal of trust money. Scotland was excluded from the scope of these enactments, but in 1884 a special Act was passed conferring wider powers of investment on Scottish trustees. The conversion of the National Debt in 1889 was followed by the Act of that year, and it in its turn by the Trustee Act of 1893. Besides the huge addition to the list of trustee investments made by the Colonial Stock Act of 1900, the vast increase in municipal borrowing, the war issues of Consols, and the Irish Land Stock had to a perfectly abnormal extent increased the supply. This increase, too, be it remembered, came at the very time when the miserable yield just previously obtainable, owing to a scarcity of trustee investments, had forced people to revise their attitude to them. When prices began to fall these investments gradually, but very really, became as unpopular in many quarters as they had previously been sought after.

It had been forgotten that “it is impossible to guard against capital loss by merely formulating certain fixed principles which ought, speaking in the pure theory of investment as understood by the legal advisers of the Crown, to determine absolutely the safety of an investment,” and that “any effort to name a stock, or a group of stocks, which, at all times, and under all conditions, is to be regarded as a desirable purchase, is to court disaster. No such automatic selection of investments ever could be made as would stand good for all time and at all times.”

Having spoken of Consols and trustee stocks in general, let us now look at British railway and municipal securities.

In England trustees may invest in any Debenture, Rent Charge, Guaranteed or Preference stock of any railway in Great Britain or Ireland that has paid not less than 3 per cent. per annum on Ordinary stock for each of the ten years preceding date of investment.

The leading English railway is, of course, the London and North-Western, and its premier security is its 3 per cent. Debenture stock. Taking the lean half of 1906, we find that the

Gross revenue was - - - - -	£7,420,275
General charges took - - - - -	4,639,153
	<hr/>
	£2,781,122
The interest on Debenture stock and	
loans and rents required - -	688,153
	<hr/>
Leaving a margin of - - - - -	£2,092,969
	<hr/>

Even after paying the interest on the Guaranteed and Preference capital, there remained £1,275,510, out of which the Ordinary stock got a dividend at the rate of $5\frac{1}{2}$ per cent. The same rate was paid in 1907, as against $6\frac{1}{2}$ per cent. in 1897. Practically, therefore, there was no change in the safety of the Debenture stock. The highest and lowest prices in these three years of the 3 per cent. Debenture stock have been—

	Highest.	Lowest.
1897, - - - - -	122	116
1906, - - - - -	$99\frac{5}{8}$	92
1907, - - - - -	$97\frac{1}{4}$	87

Even allowing for the inability to raise rates, the ever-increasing cost of the Board of Trade requirements, the rise in taxes, and the demands of labour, it is impossible to believe that the security of a Debenture stock such as the London and North-Western can ever be menaced, or that its normal price is anywhere near the present low figure of 87.

Whatever was the lot of the inhabitants themselves in regard to sanitation, water supply, lighting, or means of communication, municipalities in former days moved slowly, debt was incurred cautiously, and with great regard to the burden on the rates. Municipal trading, in response to the demand for utilities, has developed to an amazing extent. Hand-in-hand with this, unremunerative expenditure on a great scale has taken place. The ultimate effect of wasteful methods, which seem to so often accompany municipal enterprise, coupled with the obscuring of the true financial position of the undertakings, and the consequent failure to adequately provide for

the replacement of capital by Sinking Fund, are not realised. Already, however, highly-rated neighbourhoods are being forsaken by their population and industries. Even in cases where the rates are not extreme, the great improvement in means of communication has, as in our own city, had the effect of withdrawing large numbers from the more populous districts to the surrounding country. As this migration is accentuated, the heavier will the burden be on those who remain.

The heyday of municipal borrowing has meantime passed.

The local debts of the United Kingdom were—

In 1874-5,	-	-	-	-	125 millions.
In 1884-5,	-	-	-	-	215 „
In 1894-5,	-	-	-	-	265 „
In 1904-5,	-	-	-	-	500 „

of which about two-fifths are “remunerative,” more or less. While in the ten years to 1895 there was an increase of only 40 millions in the debt, the increase for the next ten years was no less than 235 millions. The old adage, “Light come, light go,” was never more strikingly exemplified. Money could be freely borrowed by municipalities at $2\frac{1}{2}$ per cent., and it was to be only a question of time before the borrowing rate would be down permanently to 2 per cent.

Our own Corporation was able in 1895 to place its $2\frac{1}{2}$ per cent. stock at par and a shade over. It has to pay $3\frac{1}{2}$ per cent. on the million of stock now being issued.

The prices of some London County Council issues are instructive :—

Millions.	Rate of Interest.	Year.	Price.	Yield.
$2\frac{1}{2}$	$2\frac{1}{2}$ per cent.	1897	$100\frac{1}{2}$	£2 10 0
5	3 „	1900	$97\frac{1}{2}$	3 1 6
$2\frac{1}{2}$	3 „	1905	$95\frac{1}{2}$	3 3 0
5	$3\frac{1}{2}$ „	1907	97	3 12 0

The predatory propensities with which the present Government is credited have already been alluded to, and fear of hurtful legislation has not been without an influence on prices. The new Labour Party, in marked contrast to the two old great Parliamentary sections, is in deadly earnest. It knows what it wants, its energy is tireless, it is determined, and, further, it believes in itself and in its power, by persistent agitation and hard work, to gain its end. Its orators openly avow exclusive zeal for its own class, not for the national weal.

Quite recently the "Times" described the prevailing temper as one which "aims at breaking up the existing organisation of society and of substituting quite a different one. It aims at destroying what it is pleased to call 'Capitalism,' which really means every form of property and the free use of property, and at forcibly imposing a system of production and distribution to be directed by some kind of organised public authority." The "Times" is "not yet convinced that the infinitely complex structure of economic relations, the slow organic growth of centuries, can be suddenly destroyed and superseded by an artificial system based on superficial and illogical theories."

To allay the widespread alarm, the Chancellor of the Exchequer, at the Bankers' dinner at the Mansion House in July last, spoke as follows:—

"I speak, for the moment, as a member of the Government, and I say that, believing as I do, and as I believe my colleagues without exception do, that in the maintenance of the institutions of private property, and in the continued reliance upon individual initiative, is the mainspring of financial and commercial success; and regarding as I also do, as necessary corollaries from these assumptions, the maintenance of the sanctity of contract and the impossibility of expropriation, even for the best public purposes, without adequate compensation and adequate security for every form either of public or private investment, I do not think anyone is justified in entertaining any real apprehension that those conditions of stability are in any danger of being imperilled or undermined. I assert to you, with the utmost confidence, that, not only will I not be, but, so far as I know, not one of my colleagues will be, parties to any form either of administration or of legislation which would threaten those essential foundations of our financial and commercial stability."

Whatever may have been the havoc wrought on prices generally by the dread of the Government's influence, there can be no question of the very serious fall which took place a year ago in the price of feu-duties.

The agitation for the taxation of Land Values has in the last two years been a matter of serious moment to Insurance Companies. The considerable holdings in feu-duties and ground rents had been acquired in the belief that the legislation which

authorised trustees to invest in them was to be relied upon, and that we had not arrived within reach of the time in this country when contracts were to be regarded as waste-paper.

So recently as 1901 the Royal Commission of that year was unanimously of opinion that no interference with existing contracts was justifiable.

In 1905 the average price in Glasgow for feu-duties and ground annuals was just over $27\frac{1}{2}$ years' purchase. In February, 1906, 28 years' purchase was refused for a feu-duty about to be created.

In March, 1906, the Land Values Taxation (Scotland) Bill (known as the Glasgow Bill) was introduced in the House of Commons by Mr. John E. Sutherland. This Bill proposed to impose a special rate of 2s. per £ on all feu-duties present and future.

The Lord-Advocate pointed out that there was an enormous body of skilled opinion, as embodied in the Reports of Commissions, against interfering with existing contracts—in other words, against taxing feu-duties. While, in his view, there was scope for far-reaching reform in regard to feuing arrangements, that was matter for separate legislation, and he desired to associate this great and salutary reform with no violence to existing contracts and no invasion of rights sanctioned by the State.

The second reading was carried by a large majority, and, in spite of the attitude of Mr. Shaw, owners of feu-duties became thoroughly alarmed. The Bill was forcibly described by the Town-Clerk of Elgin as “a dishonest Bill; it tries to break contracts, and to put on one set of people the taxes which they had contracted with another set of people that the latter were to pay.”

The Bill was referred to a Select Committee, with Mr. Alex. Ure, Solicitor-General for Scotland, as Chairman. This Committee, while condemning the Glasgow Bill as ill-considered, arbitrary, and indefensible, proceeded to express their approval of the principle which underlies it, and by the casting vote of the Chairman to declare against the exemption of existing feu-duties.

After keeping everyone on the tenterhooks, making feu-duties practically unsaleable, and creating the impression that there was really nothing in the way of confiscation that might

not be proposed, a Bill was introduced in June of this year to provide for the ascertainment of land values in Scotland, no liability for rating, however, to arise without further legislation.

Relief did not come until a very representative deputation from Scotland was received by the Prime Minister and assured that existing contracts would be respected.

To give further confidence, the Chancellor of the Exchequer, when speaking on 11th July, at the opening of the new offices of the United Kingdom Temperance and General Provident Institution (whose holding of ground rents and feu-duties amounts to nearly $2\frac{1}{2}$ millions sterling), said Insurance Companies were largely interested as investors in ground values, or what are called in Scotland feu-duties or ground annuals, and securities of that type, and he imagined there was a certain amount of apprehension among investors in that class of security as to the possible effects on their investments of prospective or projected legislation. He thought that they need be under no apprehension whatever on the subject. So far as he was acquainted with the facts—and he supposed he ought to know—in any legislation which was likely to be proposed in regard to matters of that kind they might be certain that existing contracts would be rigidly regarded as sacred. There was no intention, under any pretext of public policy or otherwise, to rip up obligations which had been incurred in good faith and for value. Legislation must proceed with that for its starting-point and underlying assumption.

It is pleasing to be able to record that the other day a feu-duty in Glasgow once more brought 28 years' purchase.

No phase of the financial situation is more prominently before the public to-day than the state of matters in America. Over and over again we were assured that the absence of trouble there showed the real soundness of the position. The last week or two have somewhat discounted that view. Time quite forbids any adequate reference to the history of events there. According to expert calculations, there has been a shrinkage of £650,000,000 sterling in the value of American securities since the beginning of the year.

In the nineties American railways were out of credit, and money was not easy to raise. Expenditure on new works was,

therefore, impossible. Attention, after the period of receiver-ships, was concentrated on economy of working, increase of trainloads, &c. The limit in this respect has probably been reached in many cases. Unprecedented demands, owing to wonderful harvests and great industrial expansion, have been made on railways whose capabilities were already fully taxed. The only way out, we were told, was to spend money, and spend it freely, to provide facilities which were an absolute necessity. Money had been most liberally provided, in response to demands by all sorts of borrowers all over the world, and it seemed for a time as if the needs of the investing public, or, at anyrate, to those who subscribed for new issues, was insatiable. New issues were, therefore, hurried out in an endless succession, either in the shape of bonds or short-term notes. There was a period, indeed, when America's day as a lending nation was believed to have arrived. She was saving so rapidly that her home outlets were insufficient. It is difficult to-day to realise that so recently as 1901 a half of the issue of Consols was taken by New-York, in addition to the formation of the Shipping Combine, the provision of part of the capital for the London Tubes, the Japanese Loans, &c.

During the ten years since the establishment of the gold currency in 1896, the exports of manufactured goods have increased from 228 million dollars in 1896 to 603 million dollars in 1906. The metal production has been extraordinary. America, which in 1889 was about level with England's $7\frac{1}{2}$ million tons, has now over 25 millions, against England's 10. There has been an unbroken succession of bountiful harvests. In 1906 nearly a million immigrants entered New York. Accompanying all this activity and legitimate new enterprise there have been a widespread mining craze, great speculation in real estate and railway shares, and heavy commitments by large houses in bonds and securities that have proved for the time unsaleable.

The Insurance revelations will be fresh in your minds.

The well-known Standard Oil group is believed to control railways with a total capital of 400 millions sterling. It is also interested in other undertakings, so that, directly and indirectly, the control extends to probably 700 millions sterling. The Standard Oil Company itself was recently mulcted in a fine of six million dollars.

The Interborough Metropolitan Company is a corporate organisation, the result of a series of consolidations over a number of years of all the traction companies of New York. It was formed two years ago, with a capital of 230 million dollars. An investigation is at present going on by the Public Service Commission. It is alleged that a financial scandal exists which will at least rival the disclosures of abuses and corruption which caused such an upheaval in Insurance circles a year or two ago.

The Pennsylvania Capitol has cost £2,600,000, for which it is alleged that no more in value has been received than £800,000.

President Roosevelt has undertaken a campaign against the evils that abound. His attitude may be given in his own words:—"There is a growing determination in our country that no man shall amass a great fortune by special privilege, chicanery, and wrong-doing, so far as it is in the power of legislation to prevent it, and that fortunes, when amassed, shall not have a business use that is anti-social." The President, of course, is blamed for the unrest and distrust, but he neatly rejoins that while he is responsible for turning on the light, he is not responsible for what was there to disclose.

The London "Statist" says:—"The lesson of the crisis is not that American commercial honesty is less than the commercial honesty of other countries, but that the opportunities for successful dishonesty are much more abundant and tempting."

The machinery of credit is, in these modern days, so developed that the habit of buying more of a security than one can pay for is widespread. When it is remembered that, *e.g.*, in the case of South African mines, the security dealt in was entirely foreign to the business or trade of which the buyer had a practical knowledge, the unwisdom of the dealings cannot be gainsaid. There has been a universal straining after an increase of income by the help of credit in operations carried on in a sphere of which the operator had no knowledge.

The endless new issues of the last ten years were mostly brought out under the guarantee of firms or syndicates who underwrote for a fixed commission. So long as firms and in-

dividuals got out, that is, netted the commission, without having to take up any of the stock, they were engaged in a profitable business, and in one which was apparently attended with little risk. Its mere success, however, was a snare, inasmuch as when issues were no longer greedily absorbed the underwriters, partly in the hope that this want of appetite was a passing phase, and partly because they could not do otherwise without facing an immediate loss, were forced to carry large blocks of stock themselves. Prices could not possibly hold up under these conditions.

We have now very briefly surveyed and considered the causes which led to the price pinnacle of 1897. We have seen the removal, since then, of some of these causes, on the one hand, and the appearance of fresh factors of importance on the other hand, both operating towards a hardening in the price of credit. As to the future, let me say that I hope we shall never again see security values reach the abnormal height of ten years ago. The conditions which made those prices possible I have endeavoured to describe, and they are not those of a healthy and active world-wide state of commerce and finance. None the less, however, is it to be desired that we shall speedily be relieved from the spectacle of the wretched prices of to-day, reflecting as they do a system overwrought and unstrung to a regrettable degree. That we shall see a recovery I have no manner of doubt. When the recovery will come, and how far it will go, is another matter. We shall never be free from ups and downs, but, no matter how permanent and inevitable any tendency may seem at the time, we should never forget the German adage, "No tree ever grows quite up to heaven."

What the price of a given security on any particular day will be we cannot foresee. It is scarcely too much to apply to the course of security values Matthew Arnold's beautiful words:—

"We are all, like swimmers in the sea,
Poised on the top of a huge wave of Fate,
Which hangs uncertain to which side to fall;
And whether it will heave us up to land,
Or whether it will roll us out to sea,

* * * * *

We know not, and no search will make us know;
Only the event will teach us in its hour."

THE MORALE OF METHOD.

By JOHN I. OUDON, Manager, Royal Exchange Assurance,
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*A Paper read at the Inaugural Meeting of Session, 1907-8,
Manchester, on the Invitation of the Joint Education
Committee of the Insurance Institute and the Insurance
Association, Manchester.*

I do not estimate lightly the privilege and responsibility of again addressing you on the occasion of the Inaugural Meeting of another Session, and if I thus magnify my office it is because I am not insensible to the supreme importance of enlisting your sympathy in a region of inquiry which is in close and constant relationship to principle and performance.

Last session I invited your attention to the consideration of Efficiency in its Ethical Aspects. In that address it was essential to my purpose to distinguish between factors which are primary and those which are secondary, in elements of individuality or *self*.

The order of truth when properly examined is the same for all of us. Reflection will quickly enable us to perceive that conduct must follow character, that principles take precedence, that performance must be consequent; or, otherwise expressed, that that which is *unseen* is made visible by the things which appear. Paradoxical though this proposition may seem, its fidelity to fact is the common experience of life. That which incites to action, or determines choice, has a vital and perpetual relationship with the efficient or defective discharge of duty. "As a man thinketh, so is he." "As the worker is, so is the work."

He who by reasoning enlightens and trains himself in methods which are all-important to success in the sphere in which he finds his duty, is not only true to himself, but correct in his attitude of service, and adorns himself with habits which are of the highest importance in the fruition of life. To have fundamental principles and clear views is to apply the measuring-line not only to our service, but to the movements of our times. A vague and

indiscriminate outlook is subversive of all sound thinking and moral distinction. Attention must dominate, and observation must develop, if reasoning and judgment are to compass the powers of performance.

We live in a world swayed by thought and fact, in an age pulsing with motive and method, in times which seek and apply intelligent opinion to the most ordinary concerns of life. Ethical ideals and methods are inspiring power and adaptation to the needs of "all sorts and conditions of men," and it would probably be difficult to over-estimate the importance of the forces and factors which are dominating the thought and activities of our day.

Our own world, the sphere of Insurance, reveals evolution of thought, advancement in intelligence, and adjustment of method commensurate with new conditions and greater responsibilities. Our code of duty claims considerations greater in complexity, weightier in consequence, and more formidable in fulfilment.

What is the real character and cause of this great onward movement or trend of things? Its external characteristics or manifestations are before our eyes. What are our credentials of discernment? Do those things which are before our eyes suggest and press upon us questions to which we have no answer to give? Are we critical of methods and results in others while coldly apathetic to the standards of self, unwilling or unable to dissect and discern the principles which govern, and the methods which matter?

Shakespeare says "Self-love is not so vile a sin as self-neglecting," and the dictum has its measure of truth, for a man will never be just to others who is not just to himself, and the first essential of that justice is that he should look every obligation, every engagement, every duty in the face.

With these observations, gentlemen, I invite your attention to the Morale of Method, the Order of Action to the Attainment of an End, by proceeding to discuss what appear to me to be useful functions which avail much, which are equally true for all, and which proclaim the degree in which duty binds through the operation of primary powers, or fundamental principles. "As the worker is, so is the work." In other words, the *unseen* made visible by the things which *appear*.

Adam Smith has said, "The acquisition of all useful abilities, by the maintenance of the acquirer during his education, study, or

apprenticeship, always costs a real expense, which is a capital fixed and realised, as it were, in his person. Those talents, as they make a part of his fortune, so do they likewise of that of the society to which he belongs." This conception is, I think, peculiarly applicable to the aim and purpose for which our educational work exists, for the plane of thought and action to which our Institutes may stimulate has some relation to the endowment of early attainments and later achievements.

But the endowment of early attainments through or by "education, study, or apprenticeship" presupposes certain concomitants, faith and faculty, devotion and determination, grasp and grit, principle and method. In the realisation of personality and power, a habit, an act, or method, produces not only an effect, but a succession of effects, the first of which is instant or direct, it is *seen*. The others are revealed in sequence, they are *unseen*. Could the clearing of the intellectual vision have made them *foreseen*? It is, therefore, essential to our purpose to discover what are the methods by which immediate or later benefit may be secured, the talents which as "a capital fixed and realised" will make for the acquirer "part of his fortune," as they do "likewise of that of the society to which he belongs."

In the words of Ruskin, "It is not even a question of how much we are to do, but of how it is to be done; not a question of doing more, but of doing better."

"One man," says Mill, "from inattention or attending only in the wrong place, overlooks half of what he sees; another sets down much more than he sees, confounding it with what he imagines, or what he infers; another takes note of the kind of all the circumstances, but being inexpert in estimating their degree, leaves the quality of each vague and uncertain; another sees, indeed, the whole, but makes such an awkward division of it into parts, throwing things into one mass which require to be separated, and separating others which might more conveniently be considered as one, that the result is much the same, sometimes even worse, than if no analysis had been attempted at all."

Again, to quote from Ruskin, "Hundreds of people can talk for one who can think, but thousands can think for one who can see."

The philosophy of these views is self-evident under analysis. One man, by observation and action, takes account of the *seen*, the other takes account not only of the visible, the *seen*, but also of

that which is invisible, and which it is essential should be *foreseen*. By a careful consideration of this proposition we are led to conclude that results which may be beneficial, or detrimental to an even stupendous degree, are associated with the *seen*, for it not infrequently happens that when the *seen* is advantageous, the *unseen* or *ultimate consequence* may be disastrous. Therefore, to obtain the true perspective, the unclouded vision which sees not only the *immediate*, but *remote*, must be of clear and precise formation, so that distinct conclusions in circumstance and consequence may be obtained, to allow of results just to ourselves and in the duties we discharge. This train of thought brings us to the region of practice, to the consideration of those powers and adaptations which are neither faint nor few, the Morale of Method, the carefully-tempered tools of personality with which we prosecute our work.

In proceeding to consider any course which circumstances may make it desirable we should pursue, we must set out with clear and precise ideas of the condition of the matter, of the *naturally* possible and impossible in the acquisition of the end we have in view. In other words, we have to decide as to the *probability* or *improbability* of our method securing a successful result. This reasoning establishes, therefore, the fact of alternatives. Consequently, to know that our duty is to follow the safest and best alternative is to recognise a determining rule.

We hear much about the line of least resistance as the course expedient and expeditious. In the sense of a determinating rule, it may prove a perilous guide, subversive of moral obligation to self and to the service we render. The duties and difficulties of choice, the *modus operandi* of conduct, the alternative of method by which the right course is to be pursued with justice to self and to our responsibilities, are beset with temptations, adverse tendencies, which claim scrupulous recognition and analysis.

This conclusion is evident if we attempt to review the inclinations and desires with which we are all imbued as elements of self. Such considerations must be factors in all alternatives. The preconceived notion will affect the inclination to an extent which warps sound judgment. Desire may deceive, and dislike may defeat a course of conduct, an order of action, a method of management in which justice and common sense dictate a long road and a narrow path. To the real character and course of the object in view, the adjusting lens of precise thought must be

applied to obtain the clear and true perspective in mental vision. If we formulate only by the *seen*, if we judge only by external characteristics or manifestations, the spoken word or visible action, the cry of the crowd or popular performance, our course will be as one who steers by the current or the character of the shore, and neglects the compass and the chart. The policy of drift in thought and action has as its objective, the sea of confusion, with not infrequently the shipwreck of character.

In forming conclusions clear and precise, the different data of the things which appear must be made subservient to the things which are *unseen*, so that ultimate consequence may be *foreseen*. Salutory sense is not infrequently obtained from most unpalatable springs, and to accept the unpleasant draught requires much self-control by the rejection of desires or dislikes. Familiarity with a popular path of reasoning, united to indolent habits of thought, make us too little inquisitive, too easily satisfied with inadequate explanations of principle and purpose. Motive and method must be the directive influence, the determining cause of the forces we exercise, if we are to be just to self and in the service we render.

There can be nothing more effective in the sphere of judgment than a mind habituated to perceive how much of truth is interwoven with the things which are *immediate* or *seen*, and the things which may be *remote* or *unseen*. Under such a method of discipline our character will expand and strengthen because of the discriminating choice of that which makes for better work and fuller service. "He most lives who thinks most."

There can be no real appreciation of technical masteries, no unfolding or discoveries to be excited by new ideas, if our standard of duty to ourselves goes no further than a mere subscription to opinions and estimates which we are content to receive as expert and estimable. It is only a common truism to say that no one can be justly expected to produce results mental or material out of proportion to his powers, but it is quite another thing to be satisfied that the results produced are the equivalent of the privileges possessed and the powers attainable.

To revert to the reasoning of Adam Smith, "The acquisition of all useful abilities, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense which is a capital fixed and realised as it were in his person." He is weak, indeed, who has not an opinion, his own

or reflected, and to hold an opinion is to presuppose in some measure, however small, capacity for proportionate thought. That capacity is what it is by virtue of its prospective possibilities, immediate or remote, as the circumstances and convictions of its possessor may determine. Each time we resist or decline a duty, to which our better self prompts us, we discount our capital, relatively weakening the powers of improvement which, in the intellectual world, as in the financial, tell in ever-increasing ratio with advancing years.

Genius, ability, capacity, talent, method, by whatsoever name powers of self may be called, like water must find their own level, and the higher that level can be raised the greater must be the volume at command. The "expense" may involve sacrifice—nay, must, for little good in any form can be accomplished without the discipline of principle and independent thought, but the result will be growth of character and stability of conduct, growth and stability as real as the stature of man, which, arrived at, can never revert to the size of the child.

Thus we carry our lives in our hands, to increase our well-being in private and professional capacity, for, according to our method of reckoning the things which matter, will be our powers and performance, will be our possession of that *insight* and *foresight* which seldom fail to obtain recognition by the process of "natural selection" and "the survival of the fittest."

As a factor in performance, genius is a term much misunderstood and greatly abused. With a pessimism which is as censurable as it is common, the easy-going and invertebrate complain of their lack of genius, of their deficiency in natural ability, justly assigning to the appreciated and successful powers and performance as the result of qualities to which they themselves, by reason of "self-neglecting," can lay no claim. In other words, by the non-cultivation of such natural gifts as they may dormantly possess, they deny themselves an equal advantage in the fruition of life.

The stern and astute philosopher Thomas Carlyle has said that genius is "an infinite capacity for taking pains," or, as another outstanding intellect has put it, "genius is only a greater aptitude for patience." It cannot be denied that nature has endowed some men with marvellous gifts, but the instances are few where such powers are revealed, apart from the effective combination of qualities which discipline and develop the mind, with resultant

apprehension of power and fitness in performance. The capacity, therefore, for taking infinite trouble, mentally and materially, is the "philosopher's stone," the possession of which confers the endowment of ability.

Proportionate judgment is not infrequently awanting in truly estimating the functions of ability. To believe that ability is mainly the result of experience implies faulty vision. Coleridge aptly compares experience to the stern lights of a vessel, which illuminates only the trail over which it has passed. "The acquisition of all useful abilities by the acquirer during his education, study, or apprenticeship," to again quote Adam Smith, demands that the light of knowledge be likewise fixed in the prow to illuminate the course the ship has to take. There is qualified value in the commonplace that "experience teaches fools," and men hold it common sense, but unfortunately common sense may be widely different from correct sense. The whole body of truth, the complete course of conduct, is not commensurate with the *seen* only. There are powers which may not come within the vision of ordinary life and experience, but which marvellously matter in the morale of method, *the order of action to the attainment of an end*. The doctrine of the "survival of the fittest" may seem harsh and cruel, but it has to be faced, and we shall never regret making the best of the inevitable. To the field of intellectual observation, the domain of duty, we may justly apply the words of Sheridan Knowles, "Plant virtue early! Give the *flower* the chance you suffer to the *weed*!"

Among the qualifications which confer the endowment of ability there are three indispensable attributes—proportionate judgment, suspension of judgment, and absolute reservation of judgment. The appraisalment of the *probable* and the *possible* in the complexities of life and duty not infrequently claim much patience and labour of thought, if accurate and therefore just conclusions are to be reached. Caution in judgment is an act of justice to *self* and in the *duty we discharge*, for to keep within the *probabilities* of the *seen* is to admit the *possibilities* of the things which *do not appear*, and he who adopts that attitude is nearer *right* than he who, taking a wrong course, is ever increasing his distance from the *right*.

And now, gentlemen, wherein lies the significance of the thoughts I have ventured to submit to you? We are sentient beings, each having a place to fill and duties to discharge. If we

discern the *right*, we recognise the supreme importance of our individual obligations, the obligations of *self*. This sense of obligation in its true inwardness is in each of us really concealed. Our feelings, the measure of consciousness, we cannot impart to others, and in like manner their feelings, their hidden sense or true inwardness, we cannot make ours. Each must bear his own burden of discernment in whatever sphere his duty may lie. Hence the gravity of placing our principles in the keeping of another, whose standpoint of *insight* and *foresight* is the measure of *his* position and of *his* conclusions. To make our standard of principle and performance the value of another's position, or ideals, is subversive of sound thinking and moral distinction.

It is greatly to be feared that the mediocrity, mentally and materially, of many is due to apathy to the standards of self, to the credentials of discernment, to the principles which govern and to the methods which matter. They have no faith in the searchings of *self*, they lack grasp and grit, they have no imagination or initiation, no new plans or fresh ideas with which to attract or surprise, and so they make no progress.

We all know the easy-going, amiable, "hail-fellow-well-met" who, honestly enough, to his own satisfaction, intends to surprise his friends with his achievements of—to-morrow. "*To-morrow* is a day in the fool's calendar." Never in the business of life was that adage truer than in the pulsing performance of *to-day*. "Things don't turn up in this world," said President Garfield, "unless somebody turns them up." Granted we have dormant capacity but indolent temperament, what then? "Genius unexerted is no more genius," says Emerson, "than a bushel of acorns is a forest of oaks." "Mere capacity undeveloped is only an organised day-dream with a skin on it."

If we are to promote intelligently our own improvement we must ascertain clearly and precisely what are the true and ultimate principles which confer powers and performance. To realise incapability, and poverty of resource, is a primary credential to a successful future. "The greatest of faults is to be conscious of none." Ambition is an honourable and proper element in the compass of conduct, but to allow ambition to out-run capacity is to disregard the centre of gravity and furnish the conditions of calamity.

Let me not, in conclusion, be supposed to ignore, because I have not touched upon, other qualities which minister in the

morale of method. Under the influence of a pervading idea, harmonising with a subject far beyond the limitations of an address, it has been my endeavour to reflect, in some measure, and, I trust, with some degree of faithfulness, the standards of *self* in the *principles which govern* and the *methods which matter*.

In asking your contemplation of views which appear to me appropriate to the occasion of our meeting this evening, I venture to do so relying upon your sympathy with the educational work of the Federated Institutes. I do not know what trains of thought have been passing through the minds of my audience, but I can assure our students that the question of the technical masteries of our profession is receiving the closest attention in high quarters, and, if I judge aright, the day is not far distant when the recognition of certified results of study, other standards being equal, will secure their due reward. Much may be gathered from the words of the President of the "Federation" at the last Conference, Mr. E. Roger Owen, that "The growing needs of a business, which becomes more technical and difficult year by year, demands highly trained experts and officials, and the 'Federation' is well calculated by its machinery to supply that demand."

If it be the ideal work of the Institutes to produce men of the widest minds and technical mastery, men who shall be fit to lead as well as to organise, what must our students set before themselves? The answer is self-evident. Singleness of purpose, the clear and definite apprehension that all their powers must be concentrated on high purpose by assimilating the principles which govern and the methods which matter. The "Federation" as the handmaiden of the profession implies a corporate life, which is already exercising a moulding and maturing influence; a community of interests which yearly more clearly perceives, not only in the United Kingdom, but in other lands, that our sphere of activity, our domain of responsibility, must be equitably equipped and fully furnished with the best standards of service.

VALUATIONS UNDER THE EMPLOYERS' LIABILITY INSURANCE COMPANIES ACT, 1907.

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NOTE.—Readers are referred to the Act itself (price $\frac{1}{2}$ d.), and to the Order in Council (Statutory Rules and Orders, 1907, No. 838, price $1\frac{1}{2}$ d.), which may be purchased directly or through any bookseller from Wyman & Sons, Ltd., London; Oliver & Boyd, Edinburgh; or E. Ponsonby, Dublin.

WITHIN the last quarter of a century there has been a remarkable development in the theory of liability on the part of employers for accidents to their employees out of and in the course of their occupation, and the passing of the Workmen's Compensation Act, 1906, has now extended such liability to practically all employments involving manual or other labour. The liability for compensation is so serious in pecuniary amount that most employers are wise enough to insure against the risk, and naturally the growth of this form of Insurance has been very rapid also. The Houses of Parliament have had this practical necessity of Insurance in view, and have decided that it is their duty to see that the institutions with which such Insurances are effected are really solid and stable, otherwise the compensation which the Act provides for injured workmen and their dependants might not be forthcoming, should the Insurance Company be financially unsound, and the employer himself be unable to pay.

Government supervision of Insurance business is, as you are aware, not a new thing. The Life Insurance Companies Acts have been in force for some thirty-seven years now, and it was to be expected that Parliament should think of them in connection with Employers' Liability Insurance. Now, whether the Life Companies Acts are capable of improvement or not, they have certainly served the purpose of securing the safety of the Life Funds contributed by the insuring public. The United States and many other foreign countries, and some of our own Colonies, have adopted Insurance laws which are more stringent than the

British Acts, involving, as they do, not only a much closer scrutiny of the accounts of the Insurance Companies concerned, but also actual regulation of the working of the business by rules laid down for observance. You will remember that there was recently an inquiry as to how far our British Acts might be improved, but the general Insurance opinion was that our Acts have worked very well indeed, and that practically no change should be made upon them.

Two salient features of the Life Companies Acts are (1) that no Company can commence business without depositing £20,000 with the Accountant General of the Court of Chancery, and (2) that Annual Accounts showing the Life business separately from other classes of transactions, together with periodical Valuation Statements, have to be deposited with the Board of Trade. These Accounts and Statements are published in a Blue Book now becoming rather bulky, and they give fairly full information as to the financial working and resources of Life Companies. After the deposit of £20,000 has been made, and the Company has started business, this publicity is the great safeguard provided by these Acts for the insuring public, and "Publicity is the force which beyond all others keeps the atmosphere of a country sweet and pure."

Although Employers' Liability Insurance differs very much from Life Insurance, Parliament came to the conclusion that the Life Companies Acts might, with suitable modifications, be made to apply to it. Accordingly, the Employers' Liability Insurance Companies Act, 1907, was passed, applying the provisions of the Life Assurance Companies Acts, subject to the necessary adaptations and modifications, to Companies carrying on E.L. business. There are certain rather interesting exceptions under the Act, viz., Marine Insurance Companies, Mutual Societies, and Underwriters, but it would be outside the scope of this paper were I to offer any remarks on this subject.

The Act in itself does not actually make the necessary adaptations and modifications, nor does it fix the date on which it was to come into force. This was done by an Order in Council issued in the month of November last, the date fixed for the Act coming into force being 1st January 1908. I suppose that most of you will know that the Board of Trade invited the opinions and suggestions of various representative Insurance bodies before the Order was finally drawn up and issued, and that they have given

effect to a good many of the considerations urged upon them. Some Insurance men no doubt still think improvements could be made, but time and experience will provide the best arguments for any further modifications.

The Order, after dealing with the deposit of £20,000, with which we are not immediately concerned at the present time, goes on to require that accounts shall be kept in respect of the E.L. Department of each Company separate from the other Departments, if any, and that a separate Fund shall be formed out of the receipts in respect of E.L. contracts, which Fund shall be the security for the holders of these policies just in the same way as the Life Funds of a Company are earmarked for the security of its Life contracts.

Then the Order sets out that, at the end of its financial year, each Company shall prepare statements of its Revenue Account and its Balance Sheet in the forms prescribed in the first four of the Schedules annexed to it, and deposit copies of these with the Board of Trade. It will be necessary to consider these Schedules in connection with the Valuations, which are the more immediate subject of this paper, but it may be as well to run over the remaining requirements under the Order before entering into any details as to Accounts or Valuations. Besides the Revenue Account and Balance Sheet, Statements of the estimated liabilities in the E.L. Department, or, in other words, Valuation Statements, are to be furnished each year in the forms set out in the fifth and sixth Schedules to the Order. You will notice that all these Statements are required annually, while Life Valuation Statements are required only at the end of each valuation period of a Company—usually five years.

Then regulations are laid down for the signing of the Statements by the Chairman and two Directors of the Company, and by the principal Officer managing the E.L. business, and by the Managing Director of the Company, if it has one, and the Actuary, and for the Statements being printed and furnished on application to shareholders and policyholders of the Company.

It is as well to point out that a "Policyholder" for the purposes of the Employers' Liability Insurance Companies Act is, save as otherwise expressly provided, the person who for the time being is the legal holder of the policy for securing the contract with the Company and, where any sum is due or weekly payment payable under any policy, includes the person to whom the sum is due or

the weekly payment payable. Thus, you will see "Policyholder" includes not only the employer who holds the policy and has paid the premium, but also an injured workman or the dependants of a workman whose death constitutes a claim.

The Order also contains a number of regulations relating to amalgamation or winding-up of Companies, or transference of E.L. business from one Company to another, and in connection with this subject certain Valuations of liabilities under the policies may require to be made. I do not propose to deal with these just now, but shall go on at once to the Accounts and Valuation Statements which have to be made at the end of each year.

The first two Schedules annexed to the Order contain forms for the Revenue Accounts and the Balance Sheets of Companies doing E.L. business only, while, if other business also is transacted, the Third and Fourth Schedules show the forms applicable. Now, if you look at the Schedules you will see the First and Third correspond very closely to each other, as also the Second and Fourth. Indeed, for our purpose to-night, they are one and the same, and in actual practice, I suppose, the First and Second will hardly ever be used, as every Company doing E.L. business does other business also, so far as I am aware. However, for convenience sake, I will describe the First and Second Schedules, and then very shortly point out what additional information is required in the Third and Fourth.

Commencing with the Revenue Account in the First Schedule, we have on the left-hand side, at the top—

Amount of Funds at the beginning of the year—divided under the following heads:—

Reserve for unexpired risks.

Total estimated liability in respect of outstanding claims.

Reserve for contingencies, if any.

These three items added together form the Funds specially earmarked for the E.L. business at the beginning of the year. Then follows:—

Premiums after deduction of re-insurance premiums;

Interest and dividends; and

Other receipts (accounts to be specified).

Adding all these together, we get on the left-hand side the total sums at the disposal of the Office for the year in question; and the right-hand side of the account shows how these sums are disposed of during the year, and what is left at the end of the year. On the other side of the account we have—

Payments under policies, including medical and legal expenses in connection therewith, after deduction of sums re-insured.

Commission.

Expenses of management.

Dividends and bonuses to shareholders, if any.

Other payments (accounts to be specified).

Please notice that the "Claims" item is a cash one, and includes only the actual payments which have been made during the year. It is therefore somewhat different from what we are accustomed to in other accounts where "Claims" usually includes an estimate for claims which have arisen, but which have not been paid. However, you will see the reason for this when we come to the final items of this side of the account and the Valuation Statements.

Another point which you will notice in connection with the claims is that medical and legal expenses in connection therewith are included. The intention is apparently to find out what is the actual cost of claims apart from what we may call the ordinary Office expenses of dealing with them. Now, medical and legal expenses incurred in settling E.L. claims are hardly on the same footing as the ordinary working expenses of the Claims Department of an Office, but are really part of the claims.

The above items show what has been paid out of the account during the year, and we now come to the closing item, viz. :—

Amount of the Funds at the end of the year, as per Second Schedule—shown under the following heads :—

Reserve for unexpired risks, as per Fifth Schedule.

Total estimated liability in respect of outstanding claims, as per Sixth Schedule.

Reserve for contingencies, if any.

You will now see why only actual payments are put in the item of claims, as the Reserves are meant to provide for all claims not paid and done with.

The Reserves items at the end of one year will be carried forward and appear as the first three items on the left-hand side of the Revenue Account for the following year, so that continuous Accounts of the Department will be furnished from 1908, and no sum of money can be received or paid without being shown in the Accounts.

You will please particularly notice how the other Schedules fit into the First Schedule. You have in the First Schedule at the end of the year :—

Reserve for unexpired risks (got from the Fifth Schedule).

Estimated liability for outstanding claims (got from the Sixth Schedule).

While the E.L. Fund at the end of the year appears in the Balance Sheet in the Second Schedule.

The Second Schedule is simply a Balance Sheet as at the end of each year, and it does not differ from an ordinary Balance Sheet, except that there must be an entry in it amongst the Liabilities on the left-hand side as follows :—

Employers' Liability Insurance Fund, as per First Schedule.

I pointed out a little time ago that the Third and Fourth Schedules are practically the same as the First and Second Schedules, so far as our purpose to-night is concerned, and now that I have briefly described the First and Second Schedules, you will be able to appreciate the small differences. In the case of a Company doing other business as well as E.L., the First Schedule simply becomes Account No. 1 of the Third Schedule, while the other Accounts deal with the other classes of business carried on. Similarly the Fourth Schedule is just the Second Schedule, with the addition of items relating to Fire, Life, and other classes of business. If a Company doing a mixed business prefers to do so, it is allowed to give a separate Balance Sheet for the E.L. Department in the form shown in the Second Schedule, while the other Departments are dealt with in a general Balance Sheet. You will remember that the Accident Offices Committee recommend that such a separate Balance Sheet be not given, and uniformity of practice is very desirable.

It is, however, the Fifth and Sixth Schedules of the Order with which we have to deal more particularly, and it may be said shortly that the Fifth Schedule deals with Estimated Liability under unexpired risks, and does not touch claims which have actually arisen, while the Sixth Schedule deals with Estimated Liability under claims which have actually arisen.

The Fifth Schedule consists of a statement with four columns. The first column classifies the transactions as follows :—

Unexpired Risks—

- (a) Running one year or less from date of policy ;
- (b) Running more than one year from date of policy.

And under (b) the facts are to be stated separately, according to the duration covered by each premium.

Of course, by far the greater number of transactions will come under the first head, but there may be a few contracts where a premium covers more than a year's risk, or where the premium may be paid up for two or more years in advance. These two latter classes of transactions will naturally be comparatively few in number, as Tariff Companies, as you are aware, are debarred from issuing policies running for more than fifteen months. At first sight one may be inclined to question whether it was really necessary to require a separate classification. It is not likely, so far as we can see at present, that contracts will be entered into to run for any very long time, and the difference made by the inclusion of a few special contracts with the others would not amount to very much. Still there may be a few odd policies running which were effected before this Tariff regulation was issued, and there will be some foreign business and the Non-Tariff Offices to be legislated for. The classification according to the period covered by the premium may mean quite a number of comparatively trifling entries, and I cannot say that I see sufficient justification for much detailed separation of the business.

The second column in the statement asks for the Amount of Premiums, and this is simple enough, as the figures to be entered will be simply the amount of the year's premiums on the yearly or shorter policies, and the amount of the single or commuted premiums for the policies of longer duration. There is just one difficulty about these latter premiums, but it will be more convenient to refer to it also later on.

The third and fourth columns are closely related to each other, as the Companies will, in the third column, state the amount of reserves made for unexpired risks according to the various durations of transactions, as above explained; and in the fourth column, the percentage which such reserves bear to the respective premiums. The Order lays down no rule whatever as to the amount of such reserve or the percentage. It simply asks the Companies to state the amounts and the percentages, and leaves it to those interested to decide whether these are sufficient.

The only requirement laid down is that the precise method adopted in the computation of the reserve must be fully and definitely stated.

Now, if a Company wished to be exceedingly accurate, it would have (1) to ascertain how long each policy had still to run, and (2) to decide what claims may be expected under it. In practice, however, it is usual to assume that transactions running for a

year, or for a shorter term, have a certain average time still to run at the end of the financial year, and each Company decides for itself from its knowledge of its own business what is that average period.

In the case of yearly E.L. policies, we shall probably be safe enough just now in saying that there will be some seven to eight months of the risk still to run as at 31st December. Although the Workmen's Compensation Act came into force at 1st July last, and a very great many policies were effected just about that date, yet I think each Company's experience will show that, all through July and August, and even into September, a considerable number of policies were issued, while there is a certain amount of new business being always transacted. Also some old Insured paid an additional sum, as from 1st July, to make their old policies carry the liability under the new Act until the renewal dates came round. Again, many large firms have arranged that the renewal date of their E.L. policies shall be the dates on which they make up their annual accounts. This has very obvious conveniences, as the wages statements are made up to that date. Thus renewal dates may be fairly evenly spread over the year, and it is not easy to arrive at any definite opinion by *a priori* reasoning.

Most Offices issued a great many Domestic Servants policies early in 1907, and, if we judged by the interest which the public took in these policies, we should say that the bulk of the business was represented by such Insurances. When we look at the premium results, however, these great number of transactions produced not a very great deal of cash, and therefore these early policies need not be laid much stress on.

You will thus see that, although the Act came into force as on 1st July 1907, all policies do not date from then, and the tendency will, I think, be for this date to become less and less the principal renewal date, and it may be that the Scottish and English Term days will, in the course of time, become the dates for renewal of E.L. policies as well as of Fire policies. If I could have spared the time I should have liked to have made some inquiry into the extent E.L. renewal premiums are spread over the year, but I found it impossible. Consequently the opinions I have expressed are only first impressions, and are therefore open to correction.

I have not touched upon the effect which Short Term policies may have on the average unexpired risk, but their influence must not be forgotten. The late Mr. Deuchar, in one of the first

papers read to the Insurance Society of Edinburgh, gave an explanation of how to arrive at the proper reserves for unexpired risks in Fire business, and his method can be applied to E.L. business also, and I would recommend you to give some study to this paper.

Again, if Companies were strictly correct in estimating the liability under their existing contracts, they would need to take into account their experience of each risk since it came on their books, and the corresponding prospect of further claims during the remainder of the currency of the policy. There would no doubt be many risks which had turned out decidedly badly, but, on the other hand, there would be probably many which show a favourable experience, and, putting the one against the other, it may be hoped that, in the case of any Company which carefully selects its business, the premium received is not an unfair measure of the risk covered. Of course, if this was not the case when the policy was issued, then the premium was not properly fixed. Accordingly we come to the conclusion that, if the risk be evenly spread over the year, a fair reserve for unexpired risks is a proportion of the premium income corresponding to the average time each policy is assumed still to have to run. The reservation I have made may be of some importance or it may not. Accidents may be more frequent in some employments in winter, owing to cold and poor light for instance. Although we may, for the present, ignore this factor in practice, yet I hope that someone will go into the subject before long and give us some authoritative data.

We have also to keep in mind that the premium which a Company charges is calculated to meet not only claims and the legal and medical expenses connected therewith, but also the ordinary working expenses of the Company, while its shareholders may also expect a small portion by way of dividend. Each Company has its own experience of how much of its premiums goes to meet claims and relative expenses, and how much is spent in the obtaining of the business and its renewal. Commission, which is one of the heaviest expenses, will have been paid on these current policies, and also the expenses of the collection of the premium. There will still be a proportion of the general working expenses of the Company and some profit for its shareholders to be provided for in the reserve to be made, but roughly from 20 per cent. to 30 per cent. of the annual premium may be reckoned upon as having been already disbursed. Accordingly,

some 70 per cent. to 80 per cent. only of the premium is available, even at the outset, to meet claims and their relative expenses and to provide a share of the running expenses of the Company and for profit. If we suppose that each policy has still some seven or eight months to run at the close of the financial year, we come to the conclusion that about 40 per cent. to 50 per cent. of the gross premiums should be held by the Company in respect of unexpired risks, and if short term contracts are at all numerous, the lower figure should not be far wrong. Forty per cent. of the Premium Income (including, perhaps, quite a number of long-term contracts) seems to be a usual reserve among Fire Companies for unexpired risk, and it may be also a sufficient reserve in E.L. business also, though there are differences between the two kinds of Insurance which must not be overlooked.

The above remarks apply to policies for a year or for a shorter term, but, of course, when we deal with single premiums which cover more than a year, or commuted premiums for a number of years, a much larger percentage than 40 per cent. may be required. No general rule is possible here, and each duration must be dealt with separately according to the time which the policy has still to run, but the principle described above is applicable for these cases also.

The Schedule is not explicit as to stating the amount of the single or commuted premiums on policies which may run for more than one year. The amount of a single premium will no doubt be included for the year in which it is receivable, but suppose the policy runs over the whole of the succeeding year and into a third year, what then? The policy will be in force at the close of the second business year, and it can hardly be intended that the amount of the single premium should be entered in this year also, or that it shall be split up into portions applicable to each year, or that the unexpended balance at the end of one year should appear in the premium income of the next year. Still, although the premium may not be entered in whole or in part in the second column of the statement for the second year, a reserve has to be shown in the third column for the unexpired risk, with the result that, in the fourth column, a percentage comparison is made between a reserve, inclusive of certain policies, and premiums which do not contain any amount relative to these policies. It follows, therefore, that the percentages in respect of these policies which run more than one year may be quite useless and misleading.

No doubt if a Company did a very considerable amount of business under such policies a fair average might be arrived at from year to year, but still it appears that the percentage of reserve to premium income so far as these policies are concerned, if not actually meaningless, should not have too much importance attached to it. Indeed I think the percentage column for the whole Schedule might have been omitted altogether, as a lower percentage in one Company may actually be a better comparative reserve than a larger percentage in another Company. No doubt the public can work out the percentages for themselves, but the fact that the Board of Trade asks for these gives them in the eyes of the public a value which may be fictitious to a considerable extent. I see one correspondent of *The Scotsman* demands that the Board of Trade shall lay down a minimum percentage, which each Company would have to reserve. Truly a little knowledge is a dangerous thing.

Probably you will have noticed the appeal before the House of Lords as to Income Tax being chargeable on reserves for unexpired risk. No doubt a good deal has been and can be said on either side, but the fact remains that the Board of Trade now requires a reserve to be made for unexpired risk in E.L. business, and therefore recognises the liability against which the reserve is held. It seems a little inconsistent that a sum can at one and the same time be a reserve for an acknowledged liability and at the same time be all taxable profit, but perhaps as a working rule the practice is fairly just.

Before discussing the Sixth Schedule, which deals with actual claims current, it may be just as well to consider the sort of claims we have to provide reserves for. Claims arising other than under the Workmen's Compensation Act, 1906, are all for lump sums, and the reserves necessary will consist of the sums fixed upon, either by agreement or by course of law, together with estimates for the claims not yet settled. In the latter case the head of the Claims Department must just estimate to the best of his ability what he can settle for, or what a jury are likely to allow. It is only under the Workmen's Compensation Act, 1906, that claims for weekly payments can occur, and under the Act the following cases may arise:—

- (1) Claims already fatal (with or without there being dependants).
- (2) Claims which are likely to prove fatal.

- (3) Claims which mean temporary disablement only, whether total or partial.
- (4) Claims which may mean disablement for an indefinite period, but which cannot be classed as certainly permanent.
- (5) Claims which mean permanent disablement.

If we keep this classification in view, the rather complicated requirements of the Sixth Schedule with its seven sections do not impress us so much. One general observation applies to all the Sections except G, viz., that Fatal and Non-fatal claims have to be stated separately. Another is that the Schedule sets up no rules for estimating liability, so that the making of sufficient reserves is left entirely to the Company.

Section A, sub-section (a), you will see is quite a simple statement of the number and amount of claims arising and settled during the year, but sub-section (b) is more difficult, being a statement of the number and estimated liability in respect of claims arising during and *outstanding* at the end of the year of account.

Parenthetically, I may remark that the word "outstanding," as applied to claims in the sense meant in these two Schedules, is hardly happy. I have always understood by an "outstanding" claim one which is complete, in so far as the occurrence of the event giving rise to the claim, the only points unsettled being the amount to be paid, the recipient, and the date of payment, or other details of a similar kind. The word is quite correct when applied to a Fire claim, but it seems to me it is not correct when applied to an E.L. claim, seeing that part of the contingency giving rise to a claim has not yet occurred. It is true the accident has occurred, but the continuance of the disablement is a thing entirely of the future, and the compensation for next year's disablement cannot be said to be "outstanding" at the end of this year. It seems to me a better adjective would have been "current."

Now all the claims dealt with in the two sub-sections of Section A are so recent that the Claims Department of the Company will no doubt be in possession of fairly full information as to the condition of the injured workmen, and as to what dependants they have. The Company will, with the advice of its Medical Officer, be able therefore to estimate, with some approach to exactness, what it must hold in hand to meet claims in respect of injuries which appear likely to end fatally, or which have already done so.

There will be more difficulty in estimating the liability under the Non-fatal Claims. Still the great majority of cases will come under the head Temporary Disablement, and an estimate can readily enough be formed of how many weeks' compensation will have to be paid. Considerable difficulty will arise in cases which come under our fourth head of disablement caused by severe injury where there is no immediate probability of death occurring, but a prospect of ultimate recovery after a considerable lapse of time. In such cases the Company must, with the aid of its Medical Officer, estimate to the best of its ability what is to be the duration of the disablement, and reserve the weekly allowance accordingly. In most cases these claims even will not run long enough for interest to come into play, for, if they do, it would be safer to include them under our fifth head of Permanent claims.

If the claim should be for Permanent Incapacity, either total or partial, then it will be necessary either to pay to the injured workman for the rest of his life the weekly sum due, or to redeem the payments according to the Workmen's Compensation Act, 1906, or by mutual agreement, and the liability must be estimated accordingly. In the Workmen's Compensation Act, 1906, you will remember that the cost of an immediate Life Annuity from the National Debt Commissioners, through the Post Office Savings Bank, of 75 per cent. of the weekly sum payable is set up as the measure of the liability for permanent disablement, should the employer wish to redeem the weekly payments after they have been running six months, and you will probably have noticed also that under the Order in Council the same measure is set up in certain circumstances. It will be a matter for consideration in each case as to whether this measure of liability is a fair one, but we shall discuss this question at length later on, when we come to Section G, which deals with Permanent claims.

It will probably be easier to follow the working of Sections B to F of the Sixth Schedule by taking concrete years. Let us suppose we are making up the accounts and statements for the year ending 31st December 1915. Under Section A, sub-section (a), we would state the number and amount of claims arising and paid during 1915; and under sub-section (b) the number of claims which have arisen during that year and are still outstanding at its end, and the estimated liability thereunder. Please note that everything paid in 1915 in respect of these outstanding claims goes into sub-section (a), while sub-section (b) states what we

estimate we must have in hand at 31st December to meet the payments in future years.

Then under Section B we would give particulars of the claims which arose during 1914, but which had continued into 1915. These particulars would be given in respect of Fatal and Non-fatal claims as before, and the Non-fatal claims would be split up into those which terminated in 1915 and those which were still running at the end of that year. The first columns of this Section would show the number of these 1914 claims outstanding, and the estimated liability for them as at 31st December 1914. These figures will be taken from Section A, sub-section (b), in the 1914 statement. Then in the following columns we would state the number and amount of claims paid during 1915 in respect of the 1914 claims, and also the number of them still outstanding at the end of 1915, and the estimated liability thereunder. Finally, there are columns for adding together the amount paid during 1915 and the liability at the end of that year, thus affording a comparison between the reserve made for this particular set of claims at the end of 1914 and what they actually cost in 1915 plus the necessary reserve for them at the end of 1915.

Section C will deal with claims which arose in 1913 and continued into 1915. The first columns show number of claims and estimated liability as at 31st December 1913, these figures having already appeared in Section A, sub-section (b), in the 1913 statement. The succeeding columns show the total payments made in the two years since 31st December 1913 and the estimated liability at the end of 1915, and the last columns as before afford the comparison of the actual cost of these claims during the two years plus the present reserve with the Company's estimate at the end of 1913. This may seem a little complicated, but it really is not so bad in practice, and you will notice how the various statements fit into each other in successive years. In the same way Sections D, E, F would deal with claims which arose in 1912, 1911, and 1910, and which were still outstanding in 1915.

The claims dealt with under Section F will all have been running five years or more by the end of 1915, and so will merge in the facts recorded in Section G. Accordingly, although a statement of them appears separately in Section F, they are in the Valuation Balance Sheet included under Section G, which I shall describe shortly.

You will remember I said that the statements in Sections A to F afford in the course of time a means of checking whether a Company makes sufficient reserves for its claims at the end of the year in which they arose. Thus, suppose a Company had at 31st December 1910 reserved £10,000 in respect of the claims arising in and still outstanding at the end of that year, and that during the next five years it had paid £8000 in respect of these particular claims, and suppose further it had at 31st December 1915 to estimate the outstanding liability in respect of them at £4000. Adding these together we get £12,000, and it might perhaps at first sight appear that the original estimate was £2000 short. This, however, leaves out of account the interest in the meantime earned on the balance of reserve held, which in the present example might nearly meet the deficiency.

Perhaps it may be as well to say what are the requirements of the Sixth Schedule for this year 1908 in the case of a Company closing its books at 31st December. Section A with its two sub-sections will furnish a statement of claims arising and settled during 1908, and a statement of the claims arising during the year and outstanding at the end of it. Section B will contain a statement relative to claims commencing in 1907, and the first columns will show the estimated liability at the end of 1907. In the other columns will be stated the amount of claims paid during 1908 in respect of these 1907 claims, the estimated liability at the end of 1908, and the summation of the claims and liability. In Sections C to F claims which arose in 1906, &c., and were still running in 1908, if there should be any, will be dealt with, but the columns headed 2 and 3 will be left blank. The columns headed (4) will show the number of claims and estimated liability as at 31st December 1908, and for the purposes of these Sections these claims will in future claims be dealt with as if they had commenced in 1908.

The first statement of estimated liability, except under Section B dealing with 1907 claims, will thus be made as at 31st December 1908, and in Sections C to F no information will be given as to payments or estimates previous to those contained in the 1908 accounts.

In the 1909 accounts full statements will be expected under Sections A, B, and C, but under the other Sections the estimates in the first columns will be those as at 31st December 1908, and the claims paid only the payments made since that date, even though the claims arose in previous years. These partial state-

ments will go on until 1913, but after that all the Sections will contain complete information as to the original estimate for each year's outstanding claims, the actual payments made since then, and the liability which still remains.

You will notice that a difference is made between claims arising before 1907 and those arising in that year. Probably the reason is that the Workmen's Compensation Act came into force in 1907, and that claims from previous years are assumed to be of much smaller importance.

You will accordingly see that in these Sections all claims are kept under observation until they gradually are worked out, or until the end of five years. It is apparently assumed that at the end of five years after the first estimate was made, all claims have become permanent, *i.e.*, that there is little or no chance of recovery or of reduction in the weekly amount payable, while it may be assumed also that there is no immediate prospect of the injured workman dying from his injuries. Accordingly, these claims, after five years, have practically become annuities payable to the disabled employees, with a possibility in certain cases of an increase if a partial disablement should become more severe, or if an employee was under 21 at the time when the injury occurred.

We now come back to Section G, which deals with the estimates of the liability under these Permanent or Annuity claims, and I may say incidentally, this Section is the only part of the returns which has to be made and signed by an Actuary as such, although it seems to me that the statements in the other Sections involve actuarial work also. Curiously enough, there is no definition of "Actuary," and the Board of Trade might have been well advised to have defined Actuary as a Fellow of either the Faculty or the Institute of Actuaries. Still, on the whole, there is not much risk of any Insurance Company employing as its Actuary men of the type who at one time used to be employed for certain Friendly Society and similar work, and whose qualifications for and rights to the title of Actuary were extremely problematical.

Section G consists, to a large extent, of statements of the ages of the workmen at the date the account is made up, number of claims, amount of weekly payments, amount of annual payment (presumably 52 times the weekly payments or thereby), estimated liability on the Parliamentary basis of the cost of a Post Office Annuity of 75 per cent. of the weekly payment, and the estimated

liability as fixed by the Actuary if calculated otherwise than on the above basis. It will be noticed that the workmen are to be classed according to their ages, so that the weekly and annual payments corresponding to each age are shown, and the estimated liability has also to be shown for each age. With these particulars an outsider can form some idea of the sufficiency of the reserves made, but it must be remembered that the information given is only partial. It is impossible to give any return of the special knowledge which each office will have as to the nature of the injury and its effect upon the workmen's prospects of longevity. In some cases the injury received, especially in cases of partial disablement, may have no great effect upon the length of the life of the workman, except, perhaps, in so far as he may have to live with somewhat less comfort than he might have done if he had been able to earn full wages. In other cases again, the injuries may be such that it is practically impossible for him to live more than a few years. Evidently, therefore, the Actuary and Medical Officer, in view of the information which they have, must be free to allot to the life of each injured workman a value which in most cases will be less than the value of a perfectly healthy life of the same age.

Now, the Parliamentary estimate is based on a very healthy class of lives, as annuitants are proverbially long-lived, while workmen, generally speaking, belong to a class with smaller prospects of long life, even if they were not disabled. Besides this, the very fact that they are to some extent permanently injured means that their lives will be on the whole inferior to the average of their own class. An allowance for the above facts has been made in the Parliamentary estimate in knocking off 25 per cent. of the amount of the annuity, but each Actuary must make up his own mind whether that measure of the probable life-time of the workman is a fair one, and, if not, what measure he should use instead. If the Actuary does use some other measure he has to give pretty full particulars of how he makes up his figures. He must state whether they are made up on the basis that each claim is really an immediate Life Annuity. If so, he must state the Table of Mortality and rate of Interest used, whether discrimination is made according to the sex of the workmen, whether the full Annuity Values according to Table of Mortality used are reserved, and if not what proportion, what modifications, if any, are made in the ages of the workmen in arriving at the estimated liability,

and finally he has to state the amount of estimated liability for each year of age.

As we pointed out above, there are many cases where it would not be feasible to take the cost of a Life Annuity by any known Mortality Table as the measure of reserve for the claims, and in respect of such cases a further statement is asked for giving particulars as to the precise method adopted in deducing the liability, and, of course, the total amount of the estimated liability for such cases has to be given in the returns.

There is very considerable difficulty in the search for a suitable Mortality Table by which the outstanding liability for E.L. contracts can be calculated. I do not know of any table suitable even to a limited extent, and those of my actuarial friends whom I have asked can give me no assistance in the matter. If the workmen had not been injured the tables known as the English Life Tables might have been just as suitable as could be found, being made up from the mortality experience of the general population, in which, of course, the industrial classes preponderate. Other tables which give very similar results are the Friendly Societies' Table drawn up by Mr. Sutton in his report on Friendly Societies' Sickness and Mortality experience, published in 1896, and a set of very interesting tables drawn up by Mr. Watson from the experience of the Manchester Unity of Oddfellows, but none of these are what we need, as the lives dealt with therein are average lives and not damaged lives such as we have to deal with.

Another drawback to a general population table is the uncertainty that ages are correctly stated. There appeared in *The Scotsman* recently a letter from a country Registrar giving it as his experience that the ages at death of the industrial classes are very largely understated. His reason for this was the almost universal practice of industrial Insurance, and he says that in the case of elderly lives more especially the ages are very frequently understated when the policies are taken out, and that when death occurs the true age is not given to the Registrar, but an age to correspond with the figure stated to the Insurance Company. This Registrar states that it is a very common thing for the relatives to come back asking that the age in the death certificate be altered showing the age to be younger. Dr. Dunlop, of the Scottish Register Office, corroborated this statement in some remarks he made at a meeting of the Institute of Actuaries recently, when census returns were being discussed. There is

apparently no doubt that the above is true to a certain extent whether from intention or from ignorance, and the value of such tables is, therefore, diminished when we deal with real ages. This is an objection of some weight, as we may take it that Insurance Companies will take care they are not reserving for too young ages.

The following table shows the comparative cost of an annuity of £52 a year (= £1 a week) at various ages for male lives according to (1) the English Life Table No. 3, (2) the British Offices Annuitants Table, and (3) the Post Office Table of Prices. In the first two columns the rate of interest assumed is 3 per cent., and the annuities are what Actuaries call continuous annuities, these being a convenient approximation to weekly payments. The Post Office figures, of course, are taken from the official leaflets, and its annuities are payable half-yearly.

Age.	(1)	(2)	(3)
20	£1121	£1189	£1185
30	1015	1080	1064
40	882	941	930
50	724	775	780
60	547	592	597
70	369	413	414

You will see the British Offices Table and the Post Office give very similar results, while the English Life Table figures are considerably less.

There are numerous Tables of Mortality which differ from what we may call Standard Tables owing to climatic or occupation risks, but none of these seem to me suitable for the purpose of valuing these annuities. I looked at the Table of Annuity Values drawn up by Mr. G. M. Low in his paper to the Actuarial Society of Edinburgh on the Mortality among Liquor Sellers, these, as you are aware, being considered about the worst class of insured lives. His figures bring out a very heavy mortality up to middle life, and a comparatively lighter rate after that age, the reason for this being fairly apparent. It seems to me, however, that this light mortality at the older ages makes this table unsuitable for the present purpose, and I have, therefore, left it out of account.

Various hypothetical Tables of Mortality have been drawn up from time to time, and I now give a statement of the cost of the same annuity of £52 a year, assuming (1) an extra mortality of one person per 100 each year over the normal, and (2) an extra

mortality of 80 per cent. over the normal, and (3) of the cost of an annuity of £39 a year (= 15s. a week), this latter being the Parliamentary measure of liability for a weekly payment of £1.*

Age.	(1)	(2)	(3)
20	£999	£1021	£889
30	923	908	798
40	818	765	698
50	682	597	585
60	524	420	448
70	360	262	311

The figures in the first two columns are calculated from hypothetical tables given in a paper read by Mr. Lutt before the Institute of Actuaries in October last, the normal table being the O^M(5), which may be taken to represent the mortality among insured lives after the first effects of medical and other selection have worn off.

You will see that the Parliamentary measure is the lowest, except at the older ages, but of course no one can say whether the mortality in either of the hypothetical tables is anything like the true mortality among injured workmen.

At present it is difficult to express any decided opinion as to what table of mortality or methods should be used for E.L. Valuations. The whole subject requires a great deal of scientific inquiry, and, above all, experience in actual working. I have not been able to give the time I should have liked to the subject, as it opens out so many new lines of inquiry, and the practical considerations are so numerous. I may say that several points relating to E.L. Insurance are on the billet for discussion at the International Congress of Actuaries in Vienna next year, including the rate of mortality among injured workmen.

No doubt, in the course of time, the Associated Accident Offices will take steps to combine the mortality and other experience of the permanently disabled workmen they have had on their books, and until such tables are drawn up, I am afraid we shall have to content ourselves with various makeshifts. And in any event the judgment of the Medical Officer of the Company, the head of the Claims Department, and the Actuary must play a great part in the fixing of suitable reserves. I am inclined to think that the Parliamentary basis will be pretty freely adopted, and that Companies will be chary of falling below what the public are

* NOTE.—*Annexed to the paper is a Table of the cost of an Annuity of £39 a year bought through the Post Office Savings Bank. (See page 327.)*

sure to think is the official standard of reserves. The liability can always, after a claim has been running for six months, be got rid of at the Parliamentary figure, and there seems no sufficient reason for retaining more in hand.

I have spoken hitherto as if the only liability to be kept in view in these E.L. Valuations was the weekly payments to injured workmen, but we must not forget the possibility of having within a year or two to pay a lump sum in the event of death from the injury. Such lump sum will be payable only if the death can be traced to the injury, but I fear that Insurance Companies will find that the injury will be held to be the cause of death in a great many cases, even although the connection be somewhat remote. It is evident that, in the event of death after weekly payments have been received for a number of years, there will be no lump sum to pay, because the workman will have already received as much as, if not more than, would have been paid if the accident had proved immediately fatal. There will be many cases, however, where death occurs before the workman has received in weekly payments the sum that would have been due to his dependants in the event of a Fatal claim, and the balance will, at his death, have to be paid over. Accordingly, it is not only an annuity to the injured workman that has to be provided for in the reserve, but also a lump sum to his dependants in the event of his early death. In the great majority of cases the reserve put against any specified claim on the footing of its being only an annuity would exceed the maximum amount payable in the event of a Fatal claim, but it may be well to remind even Insurance men that this reserve is not necessarily sufficient to cover a payment in the event of early death. If we make a reserve for the weekly payments in the form of a Life Annuity, the reserve value of that Life Annuity does not provide for any sum at the death of the annuitant, even although the reserve for the annuity may far exceed the sum to be paid at death. The reason for this is that the excess payments to the annuitants who live long can only be made out of the surplus arising in the case of those who die soon, and therefore we must not spend this surplus in cash payments at death. Accordingly, besides reserving for weekly payments in the case of permanent injuries, it may be necessary in the case of recent claims to make a reserve for a gradually reducing sum, payable in the event of the death of the workman within the next few years. This is practically to provide a

decreasing Life Insurance for a temporary period, and here again we are faced with the difficulty of having no Mortality Table suitable for valuation purposes.

These remarks will not apply so much to Companies which make a practice of always paying down lump sums to close claims, but, I think, most Companies will prefer to keep their reserves in hand, and hope to reap some profit from extra mortality among the annuitants. It may be that the profit from this source will more than cover the risk of the death payments, but for the present at least this can hardly be taken for granted.

I have only touched upon this point at the present time so that it may be kept in view, but you will readily understand that it affords a very interesting subject for further inquiry, and that the reserves for it may be a matter of some importance. I am sorry that I have not had the time or opportunity of giving such attention as it really requires.

I have now described how the estimated liability under the various Sections of the Sixth Schedule should be fixed, and adding the estimates for the various Sections together, we get the total estimated liability for outstanding claims as at the end of the year of account, and this is the item which you will remember appears in the First and Third Schedules.

All the amounts to be given in the Accounts and Statements are to be less Re-insurances, and although I have spoken of accidents only, you will remember that the term is meant to include such diseases of occupation as come under the Act.

There are certain rules laid down in the Order in Council for the valuing of the liability of a Company to its policyholders upon its being wound up, whether voluntarily or otherwise. If there is a claim for permanent disablement under a policy, the first rule fixes the value of the weekly payment according to the Parliamentary basis which we have so often mentioned before. In other cases the value is fixed as such proportion of the above value as may under the circumstances of the case be proper. Seeing that a very considerable portion of the liability will arise in these other cases the instructions cannot be said to be very full, and the liquidator has a very considerable discretion allowed to him. He will probably discover what most Insurance Companies know, viz., that the views of claimants as to what is proper compensation differ considerably from those of the person or persons who have to pay. Also it seems decidedly unusual, to say the least of

it, to measure liability for a Temporary Disablement by calculating what proportion of an immediate Whole Life Annuity is applicable to this Temporary Disablement. It would have been much better if the rule had simply stated that in such other cases the value shall be such amount as under the circumstances may be proper.

The other rule given is for valuing the unexpired risk under a current policy whether or not there is a claim subsisting under it, and the value fixed is the proportion of the premium applicable to the unexpired period. When dealing with this subject in reference to the office accounts I showed that this proportion should be materially reduced considering that the Office had already defrayed a very considerable amount of the expenses of the year's working of the policy. Of course, when winding up a Company, importance attaches to the relative amounts of claims, and if the various policies are valued in the same way no injustice is done, and the only consideration remaining is how will the policyholders stand as compared with the other creditors. Still, if these policyholders had to go to another Company to get their risks covered they would have to pay this full proportion of premium, and, therefore, it seems not unfair to make that proportion of the premium the measure of the liability of the Company which is being wound up.

Valuations of Employers' Liability policies may also be required in connection with the transfer of one Company to another. In such cases each Company will, no doubt, employ its own Actuary, who will value the liability much on the same lines as would be done for the Annual Returns. In this connection it will be noticed that if policyholders representing one-tenth of the value of the liabilities of the Company to be transferred or if either of the amalgamating Companies should dissent the Court cannot sanction such transfer or amalgamation.

I should have liked to have been able to say something as to methods of tabulating the facts so as to bring out at the end of the year the figures necessary for the various returns. Besides their own returns to the Board of Trade, the Offices have undertaken to make returns for the employers insured with them also, and the Accident Offices' Committee, I understand, are just now drawing up the forms in which they want the experience of the several Offices furnished to them. Until the requirements of the latter are known it would be a pity to suggest forms of cards or sheets which might suit the other purposes only, although no

doubt just now every Office is keeping its records in as complete and accessible a form as it can.

I am aware I have merely touched the fringe of a subject of great importance, but I am sure that very soon other papers will be submitted to this or kindred Societies which will throw some real light on its many difficult points. I very much appreciate the honour the Society has conferred on me in asking me to write what is, so far as I am aware, the first paper on Valuations under the Employers' Liability Insurance Companies Act, 1907.

TABLE showing cost of Annuity of £39 a year (= 75 per cent. of a weekly payment of £1), bought through the Post Office Savings Bank.

Age at time of Purchase.	Males.			Females.		
	Cost of Annuity.			Cost of Annuity.		
If 15 and under 16	£931	15	6	£1007	3	6
„ 16 „ 17	923	6	6	999	10	9
„ 17 „ 18	914	14	3	991	18	0
„ 18 „ 19	906	5	3	984	2	0
„ 19 „ 20	897	13	0	976	6	0
„ 20 „ 21	888	17	6	968	3	6
„ 21 „ 22	880	2	0	960	1	0
„ 22 „ 23	871	3	3	951	15	3
„ 23 „ 24	862	7	9	943	9	6
„ 24 „ 25	853	5	9	934	17	3
„ 25 „ 26	844	3	9	926	5	0
„ 26 „ 27	835	1	9	917	9	6
„ 27 „ 28	825	16	6	908	10	9
„ 28 „ 29	816	11	3	899	8	9
„ 29 „ 30	807	2	9	890	3	6
„ 30 „ 31	797	14	3	880	15	0
„ 31 „ 32	788	2	6	871	3	3
„ 32 „ 33	778	7	6	861	8	3
„ 33 „ 34	768	12	6	851	6	9
„ 34 „ 35	758	17	6	841	5	3
„ 35 „ 36	748	19	3	831	0	6
„ 36 „ 37	738	17	9	820	9	3
„ 37 „ 38	728	16	3	809	14	9
„ 38 „ 39	718	11	6	798	13	9
„ 39 „ 40	708	3	6	787	12	9
„ 40 „ 41	697	15	6	776	2	0
„ 41 „ 42	687	1	0	764	11	3
„ 42 „ 43	676	6	6	752	10	9
„ 43 „ 44	665	12	0	740	7	0
„ 44 „ 45	654	11	0	727	16	9
„ 45 „ 46	643	6	9	715	3	3
„ 46 „ 47	632	2	6	702	0	0
„ 47 „ 48	620	11	9	688	13	6
„ 48 „ 49	608	17	9	674	17	3
„ 49 „ 50	596	17	3	660	17	9
„ 50 „ 51	584	16	9	646	18	3
„ 51 „ 52	572	6	6	632	18	9
„ 52 „ 53	559	16	3	618	16	0
„ 53 „ 54	546	16	3	604	6	9
„ 54 „ 55	533	13	0	589	11	0
„ 55 „ 56	520	3	3	574	15	3
„ 56 „ 57	506	7	0	559	9	9
„ 57 „ 58	492	4	3	544	1	0
„ 58 „ 59	477	11	9	528	12	3
„ 59 „ 60	462	16	0	513	0	3
„ 60 „ 61	447	17	0	497	8	3
„ 61 „ 62	433	4	6	481	13	0
„ 62 „ 63	419	1	9	466	1	0
„ 63 „ 64	404	19	0	450	9	0
„ 64 „ 65	390	19	6	434	13	9
„ 65 „ 66	377	0	8	418	8	9
„ 66 „ 67	363	7	0	402	7	0
„ 67 „ 68	350	3	9	386	5	3
„ 68 „ 69	337	0	6	370	3	6
„ 69 „ 70	324	0	6	354	11	6
„ 70 „ 71	310	17	3	339	12	6

THE FEDERATION OF INSURANCE INSTITUTES OF GREAT BRITAIN AND IRELAND.

EXAMINATIONS, 1908.

FIRE BRANCH.

PART I., SUBJECT A.—POLICY DRAFTING AND ENDORSEMENTS.

(BLEACH, DYE, AND PRINT WORKS.)

One hour and a half allowed for this paper.

The use of the Tariff is permitted. Printed Warranties and Scale of Allowances must be used, but need not be attached to the Draft if date of issue be mentioned. Prepare Policy Schedule and calculate premium.

DESCRIPTION FROM SURVEYOR'S REPORT.

SMITH & JONES, Bleachers, Finishers, Dyers, Hillgrove Bleach
and Dye Works, Marston.

Plan No.

1. Offices and entrance, communicating to next; one storey.
- 2, 2a, & 3. Two storeys. Ground floor: steam-cylinder drying, mangling, size mixing. Second floor occupied as stores for cloth and materials-in-trade. No. 3 has a timber wall on upper floor. All communicating, and communicating to next.
- 4 & 5. Stretching, calendering; communicating, also communicating to next; one storey.
6. One storey, timber-built; starch boiling by steam.
7. One storey; singe house containing plate-furnace with three hot-plates; communicating to No. 12 by iron door.
8. Scutching, beetling, smoothing; steam chests for heating smoothing-irons; one storey; communicating to 6 and 10.

9. One storey; dye house; communicating to 12, 13, 11.
10. Two storeys; making-up, packing, loading-place.
11. One storey; drying of coloured goods by steam cylinders.
- 12 & 13. Bleach-croft, kier-house, and turbine house; part two storeys; part timber-built.

All brick-built and slated except as stated.

Cotton or other fabrics are treated as above-mentioned. No dyed or printed goods in Nos. 1 to 6, 8 or 10; no printed goods treated in 9, 11, 12, or 13. Electric light. Appliances: stationary fire-engine, with three hydrants in yard.

	Nos. 1 to 6, 8, & 10.	No. 7.	Nos. 9, 11, 12, 13.
	£	£	£
Building ..	3,250 ..	200 ..	2,500
Machinery ..	13,000 ..	250 ..	8,000
Stock ..	15,000 ..	200 ..	5,600

ENDORSEMENT.—Transfer as from renewal date £2,000 from machinery in Nos. 1 to 6, 8 and 10 on plan, to stock in Nos. 9, 11, 12, and 13.

FIRE BRANCH.

PART I., SUBJECT A.—POLICY DRAFTING AND ENDORSEMENTS.

(SHIPBUILDERS' AND METAL WORKERS' TARIFF.)

Two hours allowed for this paper.

Printed Warranties and Scale of Allowances must be used, but need not be attached to the Draft if date of issue of Warranties be mentioned.

Draft Policy, either in schedule form or otherwise, from the accompanying description from Surveyor's Report and note of amounts. Calculate premium and mark rate against each item, showing how the rate is made up.

The specification wording need not be written out in full, but may be abbreviated thus:—

On machinery, &c. (as per item 2).

On stock-in-trade, &c. (as per item 3), and so on.

All references to average must, however, be stated.

Policy to take effect from 29th September, 1907, to 29th September, 1908.

Limit on patterns, £25.

Endorse at Christmas, 1907, allowing 10 more hands for wood-working in No. 10 on plan.

EXTRACT FROM SURVEYOR'S REPORT.

Messrs. BROWN, JONES, & ROBINSON, of Fowey, Cornwall,
Shipbuilders.

Plan No.

1. Shipbuilding or metal-working shed. Part open sides, with small part (say one-eighth) of timber, and ends (say one-eighth) of corrugated iron, and roofed with corrugated iron. Contains one gas-heated plate furnace, securely fixed, but within 50 feet of timber and wood goods.
- 2, 3, & 4. Boiler shop, turbine shop, and machine shop, entirely of galvanized iron construction, with glass skylights in roof; occupied as boiler shop, engine fitting and erecting shop, and turbine construction shop, containing hydraulic and compressed air tools for the manufacture of boilers.

Machinery driven by electro-motors (in accordance with rules), and by gas engine securely erected therein. Lighted by gas and by electric light properly installed, and containing several small metal-heating fires, and gas tempering stoves securely fixed. No wood-working done in these buildings.

5. Store for wooden patterns, of two storeys. Brick, but mainly galvanized iron; built and roofed with galvanized iron.
6. Coppersmiths' shop, electric generating house, and boiler-house. Brick and about one-half timber walls and slated roof.
7. Galvanizing shop, built of galvanized iron and one-eighth timber with felt roof. A gas-heated furnace therein within 50 feet of timber and wood goods.
8. General offices and drawing offices. Brick and timber-built and slated, of two storeys. (Rate 2/6 %.)
9. General stores and stables. Brick, timber, and iron-built (about one-third each) and slated. Two storeys. Small stock of oil (one week's supply) kept in metal drums.
10. Joiners' shop. Basement (6 feet high) and two floors. Brick and slated, containing 1 gas engine of 40 horse power in non-fireproof compartment for driving machinery, 11 double benches, a vertical spindle moulder, a large planer, a log saw, and two large circular saws exceeding 12 inches in diameter. Part used as patternmakers' shop containing 6 benches, a small circular saw not exceeding 12 inches in diameter, a band saw, and a small planing machine.

Remainder occupied as store for wooden patterns.

Maximum hands employed for wood-working, 25.

11. Plumbing and painting shop. Galvanized-iron built.

Not more than one day's supply of oils or spirits kept.

All buildings detached from each other except 2, 3, and 4, which communicate freely and form one risk. All buildings are of one storey, except as otherwise stated. About 100 hands altogether employed.

No tariff extras exigible, except as mentioned.

The total ground area does not exceed 20,000 square feet.

Two fireplugs in the yard, supplied with water from public water works, with adequate constant supply, and buckets always filled with water (as per scale) provided throughout the buildings.

AMOUNTS TO BE INSURED.

Plan No.	Building	Machin- ery.	Stock.	Patterns	Boilers.	Total.
	£	£	£	£	£	£
1.	250	420	—	—	—	670
2, 3, and 4.	2,125	4,625	1,310	—	—	8,060
5.	300	—	300	400	—	1,000
6.	300	1,710	50	—	490	2,550
7.	100	—	—	—	—	100
8.	500	—	—	—	—	500
9.	250	240	260	—	—	750
10.	700	300	120	50	—	1,170
11.	125	30	60	—	—	215
Open yards :—						
On timber stacked not within 5 yds. but within 30 yds. of No. 10,	—	—	50	—	—	50
Do., not within 30 yds. of No. 10, but within 100 yds. thereof,	—	—	50	—	—	50
	£4,650	£7,325	£2,200	£450	£490	£15,11

FIRE BRANCH.

PART I., SUBJECT B.—RE-INSURANCES.

One-and-a-half hours allowed for this paper.

QUESTIONS.

Marks.

1. What essential feature distinguishes a Branch from a Head Office Guarantee acceptance? 15
2. What are the (a) rights and (b) duties of the Guaranteeing Office if, in November, the copy of a policy, for an acceptance issued at Midsummer, has not been delivered? 25
3. Summarise, briefly, the Rule relating to the treatment of Guarantee Renewal Lists after Annual Quarter Policies 20
4. What is the condition precedent to the granting of a Sub-Guarantee? 10
5. The Rules say "No error in describing the Risk shall invalidate a Guarantee." Explain how, notwithstanding the Rule, the Insurance Office may suffer through a misdescription by its re-insurance clerk? 15
6. What essential difference, if any, is there between two Take Notes, one of which bears the words "Subject to the approval of Head Office," and the other "Subject to the approval of Head Office on receipt of full particulars"? 15
7. Is a Guaranteeing Office entitled to see the Plan and Report of the Insuring Office's Surveyor on the Risk insured? In reply refer to any Rule bearing on the point 15
8. What is the latest date on which a letter of declinature for a Lady Day (25th March) Guarantee can be despatched? 10
9. Is it permissible to telephone notice to another Office regarding an existing Guarantee? Justify your answer by quoting the Rule (as fully as possible) on the subject 20
10. Subject to what two provisions does a Guarantee after a short term policy follow the continuance of the Insurance? 20
11. At the quarter-day an Insurance Office transfers a re-insurance from Office B to Office C. Only on the return of its Guarantee Renewal List two months later does Office B learn that it is off the Risk. To what date is it entitled to its share of the premium? 20
12. Mention, briefly, when Schedules D, E, and F are respectively used during a Guarantee transaction 15

FIRE BRANCH.

PART I., SUBJECT C.—GENERAL RULES.

Two hours allowed for this paper.

QUESTIONS.

Note—The first four questions are applicable to all Insurances, the remainder to Tariff Insurances only.

	<i>Marks.</i>
1. Under what conditions may insurances be made subject to the two Conditions of Average?	20
2. What portions of a building, the insurance on which is to be made subject to Average, may be excluded from the insurance of same?	10
3. Is it permissible to cover any property against other risks, in addition to fire, under one policy? If so, give particulars	20
4. Under what conditions can Forward Contracts for new insurances be made?	10
5. What is the procedure to be undertaken by an Office finding that "an official notice of a correct rating" is no longer applicable?	10
6. When an insurance, annual or short period, is cancelled before its full term has expired, what is the proper method of calculating a return of premium, if any? ..	15
7. Give the headings in the General Rules under which additional or increased normal rates are chargeable... ..	20
8. A tariff-rated building conforms to the following particulars:—Basement and six storeys in height; the basement ceiling being more than three feet above the lowest ground level of the building site; having an unfloored and unused space entirely contained in the roof, and entered by manhole only; basement and first and second storeys only fireproof, and forming separate risks; each floor separately insured. State how you would calculate height for purposes of rating? ..	20
9. In the case of allowances for automatic sprinklers, what is the rule in regard to other extinguishing appliances? ..	10
10. Define the following terms:—	
Directly communicating buildings	10
Low-pressure hot-water apparatus	10
Silent manufacturing risk	10
11. What is the meaning of the term "consequential loss of rent," and under what conditions can insurances be granted to cover same?	20
12. Under what conditions are extra rates chargeable under the following headings:—	
Stoves	5
Nightwork	5
Electro motors	5

FIRE BRANCH.

PART II., SUBJECT A.—KNOWLEDGE OF TARIFFS.

(BLEACH, DYE, AND PRINT WORKS.)

Two hours allowed for this paper.

QUESTIONS.

Marks.

1. State whether the Tariff applies to the following :—
 - (a) A printer's works for jute goods in Dundee ;
 - (b) Dyeing and finishing works for woollen goods in Gloucestershire ;
 - (c) Print works for silk goods in Cheshire ;
 - (d) Works for dyeing and finishing hosiery in Leeds ;
 - (e) A detached building occupied by a dyer, and situate on premises part of which are occupied by another firm for weaving 20
2. A firm has its printing and embossing rollers insured for £500. A fire happens, doing damage to the rollers to the extent of £100. The value of the rollers immediately before the fire was found to be £1,000. What amount would the firm be entitled to recover under its policies in respect of the rollers, and how do you arrive at it ? 10
3. What condition of Average, if any, must an insurance on stock-in-trade be made subject to ? 10
4. A storied building, detached from other buildings, is rated at 5/- (normal, 3/- ; drying, 2/-). State what the rate would be if the building communicated—
 - (a) By opening protected by single fireproof door with a shed, which, if detached, would be subject to a rate of 10/- (normal, 2/6 ; drying, 7/6) ;
 - (b) By openings protected by single fireproof door with a storied building subject to a rate of 18/- (normal, 3/- ; ageing, 15/-) 20
5. ¹/₂ What is the normal rate for—
 - (a) A warehouse for white goods situate at a print works ;
 - (b) A store for machinery at a dye-works ? 10
6. The following is the report on a worsted and cotton yarn-dyer's risk, lighted by oil lamps. Quote the rates, and how made up :—
 - (a) A five-storey building, brick-built, and slated ; used as warehouse for yarn, and for bundling and packing yarn ;

Marks.

- (b) A two-storey building openly communicating with last-named and used for drying of worsted and cotton yarn by steam pipes, and for ageing of dyed cotton yarn by steam pipes in non-fireproof compartment;
- (c) A timber-built shed openly communicating with last-named, and used for dyeing;
- (d) A two-storey boiler-house communicating by opening protected by single fireproof door with last-named, drying of dyed cotton and worsted yarns being done over a trellised wood floor over the boiler?
- (e) A four-storey detached building used as store for undyed yarn 30
7. What would the additional rate be for printing on cotton cloth in a detached building containing two printing machines, there being several other printing machines on the premises?
What would be the normal rate for such buildings? 10
8. What are the additional rates for—
- (a) Drying of white cotton fabrics over steam-heated cans?
- (b) Drying of dyed worsted fabrics over gas-heated cylinders?
- (c) Drying of printed cotton fabrics in a drying-room heated by steam pipes, there being in an adjoining building in the same premises four printing machines? 20
9. What is the additional rate for—
- (a) Drying of dyed worsted yarn in a non-fireproof room heated by steam pipes?
- (b) Ageing of dyed worsted fabrics by steam pipes, and drying of such fabrics on steam cans are done in the same non-fireproof buildings. What is the total extra chargeable in respect of such ageing and drying? 20
10. What are the additional rates for singeing of cotton fabrics and woollen fabrics respectively by fire-heat? 10
11. What discounts can be granted for sprinkler installations at Print works, and what are the Tariff requirements, if any, regarding the maintenance of ordinary extinguishing appliances in cases where such discounts are granted? 20
12. A Manchester merchant, who sends cotton goods to be dyed and finished to various dye and finishing works (excluding works where printing is done) in Lancashire, wishes a floating insurance to cover such goods

Marks.

at the said works for a period of five months. What would be the Tariff rate for such an insurance, and subject to what conditions? 20

FIRE BRANCH.

PART II., SUBJECT A.—KNOWLEDGE OF TARIFFS.

(CEMENT WORKS.)

Two hours allowed for this paper.

QUESTIONS.

1. Give the rule as to "minimum rate" under this Tariff with any exception or exceptions thereto 20
2. The Tariff is divided into several sections. Give the headings of these sections 30
3. Give the following rates:—

(a) Normal rate for cask store (in which the hand-nailing of cask hoops only is done) detached 24 feet from nearest risk ..	}	20
(b) The wooden staging around kiln heated by superheated steam		
(c) Timber in yard within 20 feet but not within 10 feet of a sack drying house (steam heat only)		
(d) Extra for keeping petroleum in a range of mill buildings		
4. Give the Tariff rate, showing in detail how same is arrived at, for the following:—A series of communicating one-storey buildings, constructed entirely of corrugated iron on steel framework, used as grinding and mixing mills (wet and dry), the machinery driven by gas engine, with gas-producing plant in the building; one disintegrator, two cokel fires for sack drying in communicating offshoot 35
5. If a cement works is equipped with such extinguishing appliances as would entitle it to a discount of 10% under the ordinary scale, what further discount would be allowed for an approved (single water supply) sprinkler installation? 15
6. What is the minimum rate for (1) a cement warehouse, and (2) an office (neither of which are affected by any other portion of the risk), under the following circumstances:—

	Marks.
(a) Where they adjoin each other but are separated by a perfect party wall, and	20
(b) Where they are detached 12 feet from one another with opposing openings ..	
7. Give in detail the rate for the following :— A cooperage detached 20 feet from any other building, entirely iron-built on steel frame and of one storey in height, lit by gas, gas engine therein for driving circular saw and stave planner, eight coopers' blocks and three firing hearths, the latter brick-built with iron doors	30
8. What rule or rules affect the application of the Average clause under this Tariff?	20
9. Quote the warranty which the Tariff stipulates must be inserted in every policy	10

FIRE BRANCH.

PART II., SUBJECT A.—KNOWLEDGE OF TARIFFS.

[SHIPBUILDERS (E. AND W.), AND METAL WORKERS (NORTHERN COUNTIES, ENGLAND).]

Two hours allowed for this paper.

QUESTIONS.

1. State the rule as to agents under this Tariff	15
2. Give the Tariff extras for the following :— (a) Slow combustion stove in patternmakers' workshop (b) Drying varnished armatures by gas heat only in metal cabinet (c) Twelve wood-working hands (d) Metal roof, having metal louvre ventilators therein	20
3. An engine works in the prescribed area comprises two brick and slated non-fireproof buildings, communicating by single iron door. These are occupied as follows :— (a) Fitting and smiths' shop of one storey, 13 men employed in metal work only .. (b) Office and works' store with pattern shop over, two men and one boy engaged in wood-working, and one man in the store. No power wood-working machinery, but electric glue-heater used. How is the risk rated?	20

Marks.

4. Rate the following :—

A shipyard joiners' shop, 40 feet \times 90 feet, brick-built, with wood and felt roof—three floors high.—GROUND FLOOR: Boiler-house, steam-heated timber drying-room, and sawmill separated by 9-inch brick walls.—Sawmill contains three (15 inch) circular saws and one planing machine. FIRST FLOOR: Joiners' shop, two spindle moulders, one band saw, one (10-inch) circular saw, and a boring machine in use; gas glue-heater and two ordinary fireplaces, one of latter being in foreman's office. TOP FLOOR: Cabinetmakers' shop (bench work only) and polishing shop—days' supply polish only allowed to be kept. Sixteen wood-working hands in the building. Gas-lighted, secure 30

5. A building at a Tariff-rated engine works, timber-built and slated, 40 feet \times 50 feet, is used for metal work only, and contains a steam engine and boiler. It is proposed to put a gallery 6 feet wide right across one end of the shop, to be used for pattern-making and pattern storage; one man employed in hand work only. A coke stove for glue-heating therein, and lighted by gas. Assuming the tariff rate to be made up as follows :—

	s.	d.
Normal	3	0
Construction	2	0
Boiler	1	0
	<hr/>	<hr/>
	6	0

How will the proposed alteration affect the rate? Show in detail 25

6. Rate the following :—

A range of freely communicating brick and slated buildings covering a ground area of 35,000 square feet. The buildings are of one storey, except that two floors over a small portion are used as drawing offices and caretaker's dwelling-house. Metal working only is carried on, and the construction of the buildings is normal. With the exceptions stated all other Tariff warranties are complied with 20

7. Give the regulations as to Average under this Tariff .. 20

8. There are three ordinary brick and slated buildings—A, B, and C. A and B are under one roof, but separated by perfect 9-inch party wall up to the roof, while C is separated from B by a similar wall carried through the roof. A is used as fitting shop for metal work only and is of one storey; B, also of one storey, is

Marks.

- similarly occupied, but contains a gas engine; both have wooden louvres in the roofs. C is two storeys, and is used for pattern-making on both floors; 14 hands are employed in wood-working, one circular saw (15-inch), one planing machine, and three lathes used; heated only by steam, lit by gas, secure and conformable to all Tariff warranties except as stated. Give the rates for A, B, and C in detail 30
9. It is desired to have a floating policy on "work in progress" at a shipyard. The property to be covered is spread over six different buildings rated respectively at 3/-, 7/6, 6/-, 4/6, 9/-, and 8/6. What would be the three months' rate for such a policy 20

FIRE BRANCH.

PART II., SUBJECT B.—THE MANUFACTURES.

(BLEACHING, DYEING, AND TEXTILE PRINTING.)

Two hours allowed for this paper.

QUESTIONS.

1. Why was a change in the method of bleaching cotton cloth necessitated by the invention of the power loom? 8
 Describe the progress of a piece of calico through the wet processes in a calico bleach works, giving the trade names of those in which chemicals are used 12
 What chemical substance is chiefly used for bleaching woollen goods? 4
2. When and why are superfluous fibres removed from the surface of calico at a bleach works? 8
 Describe two methods of doing it? 12
 What do you think of the fire hazard of the process? 8
3. Describe briefly the method of dyeing cloth aniline black, and say how it differs from that employed in connection with other colours 16
 Comment upon its advantages from a trade point of view and how it is regarded from a fire insurance aspect 12
4. In what ways are the following materials usually dried after being dyed:—

(a) Wool	}	20
(b) Worsted slubbings		
(c) Cotton yarn in hanks		
(d) Woollen cloth		

	Marks.
5. Describe a four-colour calico printing machine	12
6. In what way do you consider the introduction of the waste clause into all bleach, dye, and print works policies is likely to prove beneficial to the fire offices?	12
7. What is the meaning of "steaming in connection with or for the purpose of ageing"?	12
8. What do you understand by "Mordanting"?	12
What is your opinion of its dangers from a fire point of view?	12
9. Describe briefly and mention the use of :—	
(a) A hydro-extractor	8
(b) A calender	8
(c) A beetle	8
(d) A stenter	8
Which of them is most likely to cause a fire, and why?	8

FIRE BRANCH.

PART II., SUBJECT B.—THE MANUFACTURES.

(MARINE ENGINEERING AND SHIPBUILDING.)

Two hours allowed for this paper.

QUESTIONS.

1. Name some of the principal metal-working processes to be found—	
(1) In a marine engineering works ;	
(2) In a shipbuilding yard	15
2. What heating arrangements are necessary in connection with main metal-working processes, and what fuels and/or processes of heating are used?	10
3. Describe a cupola. State with what material it is charged, how worked, and what results it produces	25
4. How are metal moulds made, and what is the process called?	25
5. Briefly describe what constitutes the hull of a ship ..	5
6. What kind of iron plates were formerly in general use for shipbuilding and boiler-making, and what metal has now largely replaced them?	5
7. Give a short statement of what constitutes the machinery and equipment of a steamship	5

Marks.

8. Briefly describe :—
- (1) A mould or laying-down loft ;
 - (2) A template ; (a) as in use for shipbuilding ;
(b) for marine engineering ;
 - (3) A scribe-board 25
9. Describe how the iron frame or ribs of the keel of a ship are prepared and shaped, and say what the plant is called by means of which this is done 25
10. State the general nature of the wood-working department at these risks, and name the machinery usually met with in large establishments 30
11. Which do you consider the most hazardous portions of these risks? Give reasons 15
12. Specify what general features you consider call for special attention in risks of this class 15

FIRE BRANCH.

PART II., SUBJECT C.—BUILDING CONSTRUCTION (INCLUDING HEATING AND LIGHTING).

Two-and-a-half hours allowed for this paper.

QUESTIONS.

1. Define the following builders' terms :—
Soffit, abutment, lintel, quoin, plinth, wallplate,
pugging, barge board, relieving arch, jamb .. 20
2. Define single, double, and plank floors.
Show by rough sketch arrangement of timbers
known as "trimming" 25
3. What are the defects, if any, of the following materials
under the combined action of fire and water?
(a) Stone ;
(b) Iron and steel ;
(c) Cement concrete 15
4. Describe briefly two of the methods of fireproof floor construction in most general use, and the merits or defects of each from an insurance point of view 20
5. What kinds of roof would you regard as the most secure from an insurance point of view in a crowded city area? Give a reason for your opinion 10
6. How should the main rope and belt race or gearing tower of a mill be erected so as to minimise the risk of fire? 15
7. What are the fire hazards of the following :—
(a) Disused fireplace made up with wood or paper ;
(b) Gas-stove having rubber feed-pipes ;

Marks.

- (c) Steam pipes in contact with woodwork ;
- (d) Wooden mantelpieces ;
- (e) Pipe stoves ;
- Suggest alterations or arrangements with the view to minimising such hazards 25
- 8. State briefly the fire hazard, if any, peculiar to each of the following methods of lighting, and mention the precautions to be observed in the installation of each:—
 - (a) Mineral oil lamps ;
 - (b) Acetylene gas ;
 - (c) Coal gas ;
 - (d) Compressed gas 20
- 9. What is the essential difference between a low-pressure hot-water apparatus and a high-pressure hot-water apparatus? Which is the most hazardous, and why? 15
- 10. Of what materials must a party wall consist? What openings under Tariff Regulations are permitted in it with an adjoining building to be deemed and rated as a separate risk? 15
- 11. Give the essential points of the Tariff Regulations to be complied with to secure the passing as fireproof of—
 - (1) Floors of wood ;
 - (2) Flat roofs of wood 20

FIRE BRANCH.

PART II., SUBJECT D.—CORRESPONDENCE.

Two hours allowed for this paper.

QUESTIONS.

- 1. A claim is made for the destruction of a building which, at the time the insurance was effected, was used as a stable only, but at the time of the fire had been converted into a firelighter manufactory, notice of the change of occupancy not having been given to your Company.
Write to the Insured, explaining his position as regards his Fire Policy 25
- 2. An account for brigade services rendered in connection with the above fire is received from the public authorities.
Acknowledge receipt; explaining how your Company stands in regard to the matter 25

Marks.

3. A chemist writes that in the shop covered by your policy at 2/6 % he now sells paraffin, but the oil is kept in a detached uninsured building and drawn off as required by a tap in the shop.

Assuming that it is inconvenient to make an inspection, what enquiries would you make by letter about the arrangement, to ascertain whether it is obligatory to charge the Tariff Rate of 5/- % ?

30

4. Write to a proposer who, in enclosing a proposal for insurance on contents, states (as if, in his opinion, it were desirable from your Company's point of view and evidence of his honesty) that the amount proposed nothing like equals the value of his goods

20

5. A firm of engineers enquire how, in the event of their patterns and models (upon which there is a limit) being destroyed by fire, the loss would be adjusted, as the amount appearing in their balance-sheet would be no real indication of the loss sustained.

Reply suitably

35

6. A tradesman, whose building is insured against fire in your Company, and whose plate glass windows are insured with a Plate Glass Insurance Company (not transacting fire business), writes that a large pane has been cracked through a lighted gas-jet being left in contact with the glass. That he has applied to the Plate Glass Company for indemnity, but they repudiate loss

How would you reply ?

20

7. A policy-holder writes that he is obtaining quotations from other Companies, and if he discovers one willing to undertake his insurance at less than he pays to your Company, he will transfer his business, but assumes, in the meantime, his policy remains in force, as the days of grace mentioned in your renewal notice do not expire for a week.

Explain the position by letter

20

8. A linen draper and outfitter, to whom a discount is allowed for early closing, the exigencies of whose business necessitate one department being kept open one night a week, throughout the winter, until 10 o'clock, having received your reply that the discount must cease, writes complaining of the apparent hardship.

Reply fully as to the extra risk involved, giving instances of what might happen

25

FIRE BRANCH.

PART II., SUBJECT E.—PLAN-DRAWING TO SCALE.

Two hours allowed for this paper.

INSTRUCTIONS.

Draw to a scale of 40 feet to 1 inch.

Indicate brick or stone walls by thick line, timber or corrugated iron by a thin line, open sheds and imperfect wall by thick or thin broken line according to construction.

The measurements given denote feet.

Buildings all brick or stone unless otherwise described.

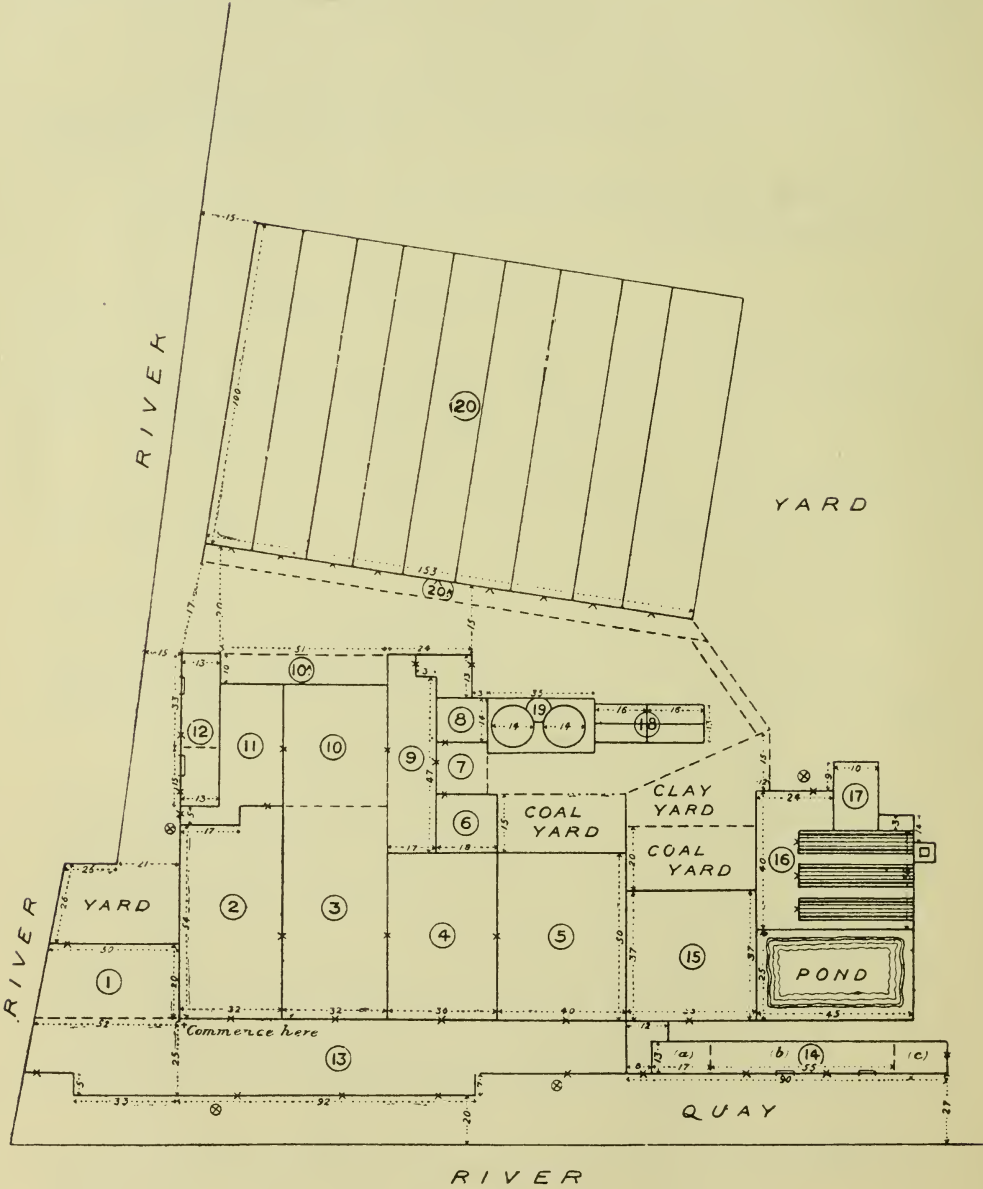
All party walls carried through roof except where otherwise stated.

Doorways and openings indicated thus: X

Hydrants marked ⊗

-
1. Corrugated iron shed, separated by timber partition from 13 (shipping shed).
 - 2/5. All communicating, and 1 lofty storey; stores for cement in bulk and casks. Each communicates with 13, and 2 with 11; 3 is open to No. 10 on ground floor.
 6. One storey—disused boiler-house.
 7. Passage-way giving access to 6, 8, and 9; slate roof and open front.
 8. One storey—pump-house.
 9. One storey—engine-room containing two 300 h.p. steam-engines; communicating with No. 10.
 - 10A. Corrugated iron roof over crushing machines and elevators.
 - 10/11. Two storeys, communicating with one another; mills for grinding dry cement clinkers.
 12. One storey—Mechanics' shop and engine-room.
 13. Corrugated iron range of sheds for storing casks and sacks.
 14. Shed building in three divisions, all under one roof, viz.:—
(a) corrugated iron-built sack store; (b and c) brick-built men's mess-room and lumber store respectively.
 15. One lofty storey—cask store.
 16. One lofty storey—boiler-house, containing 3 brick-enclosed boilers, each 35 feet by 8 feet, with 3 feet space between each; chimney stack (10 feet square) adjoins.
 17. Corrugated iron shed communicating with 16 (men's lobby).
 18. Four chalk tanks of equal dimensions.
 19. Two wash-mills.
 20. Nine fireproof kilns with drying chambers behind each.
Iron stage (No. 20A) runs along front, and timber gantry (3 feet wide and 48 feet in length) from end of stage to chalk yards.

MESS^{RS} CHALK & C^O
OF PORTLAND.
CEMENT MANUFACTURERS.



FIRE BRANCH.

PART III., SUBJECT A.—LAW OF FIRE INSURANCE
AND FIRE INSURANCE CONTRACTS.

Two hours allowed for this paper.

QUESTIONS.

	<i>Marks.</i>
1. What is the fundamental principle of a fire insurance contract?	15
2. Define the doctrine of abandonment of salvaged property in its application to fire insurance, and illustrate its effects on the insurer's position in connection with his rights of subrogation	20
3. Define the term "Insurable Interest"	20
4. If liability is denied by the insurer, what courses are open to the insured to enforce the claim?	10
5. A fire has occurred in a timber saw mill, and has destroyed an adjoining retail grocery which is insured. In replying to the questions on the proposal form, the insured had omitted, through an oversight, to answer the question as to the nature of the trade carried on in the adjoining property. The policy contains a condition that any omission to disclose, or any misrepresentation as to any fact material to be known to the Company for estimating the risk, renders the policy void. State briefly the legal position	25
6. In what circumstances can an office avoid liability for the unauthorised act of its agent?	20
7. State briefly the law in regard to mistakes in answers by an agent acting for his office, when answering queries in a proposal form on behalf of an insured	25
8. In what circumstances does the salvage after a fire belong (a) to the insured, and (b) to the insurer?	20
9. State briefly the reasons why on the occurrence of a fire the insured cannot abandon damaged goods to the insurer without the latter's consent	20
10. What is the law in respect to the disclosure of material facts?	25
11. Define the liability of— (a) Warehousemen; (b) Carriers (common); (c) Pawnbrokers (for loss by fire to goods in their custody); (d) Agents employed to effect insurance	20
12. Express concisely the law in respect of the powers vested in a trustee to insure the trust estate?	20

FIRE BRANCH.

PART III., SUBJECT B.—AVERAGE CLAUSES AND LOSS APPORTIONMENTS.

Two hours allowed for this paper.

QUESTIONS.

Marks.

- 1. Express in concise terms the doctrine underlying the pro rata Condition of Average 10
- 2. In what respect is the pro rata Condition of Average essentially different from the Second Condition of Average, so far as it concerns the relations between the several parties to the insurances? 10
- 3. Office A grants a policy on merchandise, subject to the pro rata Condition of Average, and Office B grants a policy in the same name on similar description of merchandise, but over a wider range, subject to the two Conditions of Average. What is the particular function of the policy granted by Office B *so far as it concerns the merchandise covered by Office A*? 10
- 4. What are the ordinary occasions upon which the Offices grant insurances subject to the two Conditions of Average? What are the exceptional occasions, and what special provision is made in the policies? 10
- 5. What is the guiding principle in apportioning the loss covered by non-concurrent policies, as follows:—

Policy A—On stock-in-trade	...	...	...	£500
„ B—On stock and utensils-in-trade	...	...	...	500
„ C—On stock, utensils, fixtures, and fittings-in-trade	...	...	...	500

The loss in the above case is:—

Stock-in-trade	...	...	...	...	£600
Utensils-in-trade	...	...	...	...	100
Fixtures and fittings-in-trade	...	...	...	...	100

State the apportionment as between Offices 40

- 6. Define the meaning of the term “specific insurance” 10
- 7. Apportion the following:—

Insurance.	Value.	Loss.	
Policy A—Motor cars in stable	£1,000	In stable covered by A's policy £2,000	20
„ B—Motor cars in stable and elsewhere in the U.K., subject to Average	£1,000		
	£3,000		

- 8. Explain what happens in the above example if the policy B is subject to the two Conditions of Average 20
- 9. Take three policies, as under, each subject to the pro rata Condition of Average, and apportion a loss of £600 occurring in warehouse B:—

Insurance.	Value.	
1. In warehouse A and B	£200	£1,000
2. „ A and B	400	
3. „ B and C	400	
	1,200	.. 20

Marks.

10. Apportion the following losses :—

T. Johnston, Draper, York ; fire occurs 10th June, 1907 ; agreed loss—stock, £800 ; fixtures, £200.

Insurances.—Office A—Stock	...	£600	} £800
Fixtures	...	200	
,, B—Stock	...	400	} £600
Fixtures	...	200	

Has another fire on the 4th December, 1907 ; agreed loss—stock, £200 ; fixtures, £40.

Insurances.—Office A—As before.

 ,, B—As before.

C—Stock	...	£200	} £300	.. 25
Fixtures	...	100		

11. A fire has occurred in a large warehouse occupied by four tenants in the same trade ; the losses were arranged, but it has been agreed to leave over the question of the salvage. On dealing with the salvage, the following facts appear :—

	Original Values. £		Loss as Arranged. £		Salvage Distinguishable. £		Salvage Undistinguishable. £
A ...	4,000	...	2,000	...	500	}	
B ...	2,000	...	1,500	...	50		
C ...	3,000	...	2,000	...	250		500
D ...	1,000	..	800	...	100		
	<u>£10,000</u>	...	<u>£6,300</u>	...	<u>£900</u>		<u>£500</u>

What would be the fairest apportionment of the undistinguishable salvage ? (Ignore fractions.) 25

FIRE BRANCH.

PART III., SUBJECT C.—FIRE EXTINGUISHMENT (INCLUDING SPRINKLER INSTALLATIONS).

Two hours allowed for this paper.

QUESTIONS.

1. What is the Tariff allowance when ordinary appliances are provided as follows, viz. : two fireplugs in the yard, and at least one hydrant on each floor, together with hose, water, &c., as required ; also, in addition, portable chemical extincteurs and fire buckets to Tariff scale on each floor ? 5
2. Suppose a building similar to the one above referred to is self-contained, and has no yard space whatever, but is provided with all the appliances set forth in question No. 1 (except the two fireplugs in the yard), what is the allowance ? 5

Marks.

3. How many fire buckets are required, to qualify for a 5% discount, on the several floors of a building basement, three storeys, and attic in height, the superficial area of such floors being as follows: basement, 250 square yards; ground, first, and second floors, 750 square yards; and the attic (over part only), 50 square yards? 10
4. Explain the principle of chemical fire extinguishers .. 10

AUTOMATIC SPRINKLER INSTALLATIONS.

5. What are the regulations designed to secure free play for the sprinklers in heavily-stocked buildings? .. 10
6. State the necessary requirements as to water supplies for "Standard A" and "Standard B" Installations respectively .. 15
7. State the requirements as to water supplies for "Ordinary" and "Single Supply" Installations, and say in what way they fall short of "Standard" Installations 15
8. What advantage is to be gained in having a third water supply from an approved source for "Standard B" and "Ordinary" Installations? .. 10
9. (a) Define running pressure; (b) state the conditions under which it must be tested; and (c) what is the maximum reduction allowed from the standing pressure for "Standard A" and "Standard B" Installations respectively? .. 15
10. What is the minimum pressure required at the level of the highest sprinkler from a town's main for "Ordinary" and "Single Supply" Installations respectively, and is this to be a standing or a running pressure? .. 15
11. If town's water is connected with an installation through a 6-inch branch, and the local authorities insist upon a water meter, state what size of meter should be fixed, and give reasons for same .. 10
12. How would you ascertain the contents, in gallons, of an oblong sprinkler tank? .. 10
13. What safeguards are necessary for the protection of the water in an elevated tank, and for maintaining the required supply? .. 10
14. What is a pressure tank, and where should it be fixed? 10
15. What do you understand by an automatic pump, and when is it compulsory for a pump to be automatic? .. 10
16. What is a dry-pipe system, and what are the circumstances it is intended to meet? .. 10
17. What pressure-gauges are required when the water supplies are a town's main and an elevated tank? and give reasons why these gauges are necessary .. 15

Marks.

18. Mention briefly the principal precautions to be taken when it is necessary to make alterations or additions to an installation, and to break a pipe exceeding $1\frac{1}{2}$ inches in diameter 15

FIRE BRANCH.

PART III., SUBJECT D.—ELECTRICITY.

Two-and-a-half hours allowed for this paper.

QUESTIONS.

1. State the electrical value of the following terms, viz.: 1st, Volt; 2nd, Ampère; 3rd, Ohm; 4th, Watt; and give, if possible, the derivation of them 10
2. Give a short explanation of Ohm's law, with an illustration 5
3. Explain the three-wire system of wiring, and state wherein it differs from the two-wire 20
4. A building is wired on the three-wire system from a three wire supply, the voltage at the lamp terminals being 100. This is changed to 200; give the points to be attended to when inspecting the risk under the above conditions 25
5. State what you know of the principles of an accumulator or storage cell 20
6. Why is an automatic switch necessary between a storage battery and the charging dynamo in the case of a self-contained plant, *i.e.*, not connected to public mains? 10
7. Wherein lies the difference between a direct and alternating current? 10
8. State the difference between an arc lamp of the "open" type and one of the enclosed pattern, and give the respective working voltage of the two lamps 20
9. Explain the difference between an open, semi-enclosed, and wholly-enclosed motor 10
10. A motor is designed for open working (*i.e.*, unenclosed); state why it is undesirable, from a fire point, to enclose it 20
11. Why should motors intended to be driven by a direct current from public mains be provided with an automatic switch, to come into operation in the event of a failure of the supply current? 25
12. Define the difference between a resistance coil and a "choking coil," and give the reason for their action . . 25

FIRE BRANCH.

PART III., SUBJECT E.—CHEMISTRY.

Three hours allowed for this paper.

The value of each question is the same. Whilst all the questions may be attempted, candidates are reminded that good answers, evidencing practical knowledge, to a few questions are of more value than inferior answers to many questions.

QUESTIONS.

1. Discuss, from the chemical point of view, some method of fire-proofing: (a) textile materials; (b) wood; and give your opinion as to the relative value of the material employed in fireproofing either or both classes.
2. Discuss the liability to cause fire by explosion of the following: --Coal gas, acetylene gas, ether vapour, alcohol vapour, and benzine (or petrol) vapour.
3. What are the conditions that favour spontaneous combustion in the following:—Agricultural products, textile materials (raw or under process), coal, and other solid hydrocarbons?
4. Describe any two of the following processes, and indicate what are in your opinion sources of danger and their remedies in the manufacture of:—Aniline red, matches, viscose, acetic acid from wood, picric acid, waterproofing, including use of (a) rubber, and (b) oil.
5. Flash-lights are somewhat largely used by photographers. Describe the composition and methods of manufacture of such as are known to you. How should they be stored?
6. Give an account of two or three processes of carburetting coal gas, and indicate any hazards that may appear to you to be connected with them.

LIFE BRANCH.

PART II., SUBJECT A.—PRACTICE OF OFFICES IN REGARD TO PROPOSALS, MEDICAL AND OTHER REPORTS, THE MEANING OF COMMON MEDICAL TERMS, AND THE EFFECTS OF WELL-KNOWN DISEASES ON LONGEVITY.

(FORMS OF POLICIES AND CONDITIONS OF ASSURANCE.)

Two-and-a-half hours allowed for this paper.

QUESTIONS.

Marks.

1. Describe :—
 - (a) A Double Endowment Assurance 5
 - (b) A Convertible Term Policy 5

Draft the special clauses for a policy in either class 10
2. A. B. is the owner of a business house to which a spirit licence is attached. He does not, however, occupy himself with the spirit trade. He has been a total abstainer all his life :—

He has submitted a proposal for a 10-years' Endowment Assurance (present age, 30);

He refuses to pay any extra for spirit dealing ;

Draft a letter to head office, putting his case forward for special treatment, and also a reply from head office 16
3. Give shortly the meaning of the following medical terms :—

Epithelioma ;

Haematemesis ;

Ophthalmia 12
4. What are generally supposed to be the causes of :—

General paralysis of the insane ;

Cirrhosis of the liver ;

Malta fever 12
5. Assuming you have no Indian Branch, draft a letter to a military man stationed in India, who has asked for particulars of Life Insurance, and instruct him as to what he must do to enable him to complete a policy with you direct 20
6. An agent has sent up papers in connection with a new proposal :—

Proposer has omitted to state the class of policy he desires. One of the private friends says proposer is "fairly temperate." The medical examiner has not stated the specific gravity of the urine.

Deal with these points in a letter to the agent, acknowledging the papers 20

LIFE BRANCH.

PART II., SUBJECT B.—ELEMENTARY PRINCIPLES OF THE LAW RELATING TO LIFE ASSURANCE.

USAGE IN REGARD TO LOANS ON POLICIES, SURRENDERS, AND THE SETTLEMENT OF CLAIMS.—CORRESPONDENCE WITH HEAD OFFICE OR BRANCHES, AGENTS, AND THE PUBLIC.—ISSUE OF CIRCULARS AND ADVERTISING.—CLIMATIC CONDITIONS AND HEALTH OF THE COLONIES AND OF FOREIGN COUNTRIES.

Three hours allowed for this paper.

QUESTIONS.

Marks.

1. The death of a life assured has been intimated. Notice has recorded that the policy was assigned to A and B, as trustees. It is stated that B is dead. The age of the assured has not been admitted. Indicate the various requirements before the claim can be paid .. 10
2. Why is the loan value of a policy always less than its surrender value? 5
3. What is an insurable interest? 5

Is there any case wherein one person may assure the life of another without proving insurable interest? 5
4. What is the difference between Probate and Letters of Administration? 5

When are Letters of Administration *de bonis non* granted? 5
5. State the stamp duties on the following deeds affecting a policy for £500 with bonuses of £100 added:—
 - (i.) Mortgage to secure £25;
 - (ii.) Absolute assignment in consideration of £175;
 - (iii.) Marriage settlement, (a) with, (b) without undertaking to pay premiums;
 - (iv.) Deed of gift;
 - (v.) Mortgage to bank to cover advances (unspecified) 15
6. Where are the following places, and what extra premium would you charge—for a civilian who is going to reside there for first time—under a Whole Life Policy?—

Borneo;	Trinidad;	
Manhattan Island;	Valdivia,	
Victoria Nyanza;	Tasmania;	32

Marks.

7. Which do you consider the best of the following mediums for advertising Life Assurance, with your reasons for and against? If you are advertising Fire and Accident business at the same time, say if your opinions would be modified—
- | | |
|----------------------------------|----------|
| Railway time tables ; | |
| The Insurance press ; | |
| The leading London dailies ; | |
| Religious magazines and weeklies | 18 |

LIFE BRANCH.

PART II., SUBJECT C.—BONUS SYSTEMS. METHOD OF CALCULATING EXPENSE RATIOS. GENERAL PRINCIPLES OF LIFE OFFICE VALUATIONS (NON-ACTUARIAL) AND BOARD OF TRADE RETURNS.

THE ORIGIN AND CHARACTERISTICS OF THE PRINCIPAL TABLES OF MORTALITY IN USE BY LIFE OFFICES, AND THE COMPARATIVE RESERVES IN VALUATIONS MADE THEREUNDER.

Three hours allowed for this paper.

QUESTIONS.

1. A non-profit Endowment Assurance for £500 was effected in November, 1891, by half-yearly premiums, the date of maturity being November, 1925. According to the method of making each premium secure a proportion of the sum assured, find the amount of paid-up policy which would be allowed as at May, 1908 13
2. The premium income of a Life Office for a certain year is made up of £220,000 renewals and £34,000 new business. Expenses amount to 18% of total premiums. Find the ratio of expenses applicable to renewals, assuming (1) that 75% of new business premiums is used up in expenses, and (2) that the expense ratio for new business is ten times that for renewals .. 15
3. Tell what you know about Assessment Assurance, and mention any objections that may be urged against the system 15
4. Explain the following:—
 Deferred Bonus;
 Tontine Bonus;
 Discounted Bonus;
 Compound Reversionary Bonus 14
5. What information has to be supplied to the Board of Trade in connection with a Life Office valuation? .. 15

Marks.

- 6. Describe two of the non-forfeiture arrangements which are in use amongst Life Offices 14
- 7. What two methods may be employed to put matters right when it is discovered, several years after a policy has been effected, that the age of the life assured was understated in the proposal? 14

ACCIDENT BRANCH.

PART I., SUBJECT A.—GENERAL CORRESPONDENCE.

(AGENCY, RENEWALS, NEW BUSINESS, AND ACCOUNTS.)

One-and-a-half hours allowed for this paper.

QUESTIONS.

Agency.

- 1. An agent states that he is offered larger commission terms, which are mentioned, from another office of good standing, and asks to be put upon the same footing. Draft a suitable reply 25
- 2. A policy-holder declines to renew his policy through the agent who obtained the insurance, and pays the premium direct to the Company. The agent claims commission as having introduced the business. Write the agent in reply 25

Renewals.

- 1. A Personal Accident policy-holder writes that he has insured his life, and that he does not therefore intend to renew his Accident policy. Draft suitable letter in reply 30
- 2. A Workmen's Compensation policy-holder, whose insurance has been profitable for a number of years, declines to renew his policy unless he is granted a reduction of rate. Draft reply 30

New Business.

- 1. A Personal Accident proposer refuses to take up his policy because it has been endorsed excluding the risk of further injury to his right knee, which has been severely sprained within a recent period. Write a reply 35

Marks.

2. A Personal Accident proposal has been sent by a proposer, whose duties require him to work as well as superintend, rendering him subject to Class II. rate of premium. He declines to pay this rate, and will not complete the proposal unless the Company will accept him at Class I. rate of premium. Draft reply . . . 35

Accounts.

1. An agent, who has a large account, and who has for some time been slow and irregular in his payments, and regarding whose financial position disquieting rumours have reached the office, is in arrear and states that he has not received payment of the premiums. Write a suitable letter to the Branch Office instructing them what course to take 20

ACCIDENT BRANCH.

PART I., SUBJECT B.—BURGLARY, FIDELITY GUARANTEE, PERSONAL ACCIDENT INSURANCE, AND CONTINGENCY RISKS GENERALLY.

One-and-a-half hours allowed for this paper.

QUESTIONS.

Burglary.

1. What are the respective meanings of the terms (a) burglary and house-breaking, and (b) larceny, as understood from the insurance standpoint . . . 20
2. Is it usual to cover the risk of larceny in respect of business premises? 10
3. What extra charge is made to include the risk of damage to the insured's property; or to property damage to which he is liable to make good? 10
4. What is the principal objection to the insurance of cash against loss by burglary? 10

Fidelity Guarantee.

1. What are the advantages to be gained by effecting a fidelity guarantee with an Insurance Company, instead of arranging a bond with an individual? . . . 20
2. Of whom is it necessary to enquire before it is possible to ascertain whether or not a proposal is acceptable? . . 10
3. What are the principal features of an acceptable proposal? 20

Personal Accident.

1. State the full benefits covered by an ordinary personal accident policy for £1,000, and the Class II. premium thereon 20
2. Define permanent total, permanent partial, temporary total, and temporary partial disablement 30
3. How would you classify the following:—Grocer, in business on his own account; master-butcher (including slaughter-house risk); licensed victualler, master working (excluding cellar risk); gentleman farmer; steeple-jack; and commercial traveller? . . 10
4. Under what circumstances would double compensation be payable for railway accident? 10
5. Name the six diseases usually covered by an accident and diseases policy 10
6. What is the usual rate of bonus allowed to total abstainers? 10

Contingency.

1. Name six other forms of accident, casualty, or contingency insurances? 10

ACCIDENT BRANCH.

PART I., SUBJECT C.—EMPLOYERS' LIABILITY ACT, 1880; WORKMEN'S COMPENSATION ACT, 1906, AND COMMON LAW AS APPLICABLE TO THE LIABILITY OF EMPLOYERS FOR ACCIDENTS TO THEIR WORKMEN.

One-and-a-half hours allowed for this paper.

QUESTIONS.

Employers' Liability Act, 1880.

1. Define the term "Workman" under the Employers' Liability Act, 1880, and also under the Employers' and Workmen's Act, 1875 20
2. In what respect has legal procedure in Scotland, in connection with actions under the Employers' Liability Act, 1880, been altered during the past year by the Workmen's Compensation Act, 1906, and what result was the alteration intended to effect? 15

Marks.

3. What is the effect upon an action under the Employer's Liability Act, 1880, of the death of a plaintiff, after the action is commenced but before judgment? What course is open to his personal representatives? .. 20
4. Which of the provisions of the Employers' Liability Act, 1880, is modified by the Public Authorities Protection Act, 1893, and in what respect? 20

Workmen's Compensation Act, 1906.

1. Give examples of casual employment:—
 - (a) Included under the benefits of the 1906 Act;
 - (b) Excluded from the benefits of the 1906 Act .. 20
2. In the case of a claim for compensation being made under the Workmen's Compensation Act, 1906, by a chemist's assistant, who receives 10/- per week for services during one hour per day, and who also earns 10/- per week on an average as a music teacher, and 20/- per week as the member of a theatre orchestra, what weekly compensation would be due to him in the case of accident sustained in the course of his employment? 30

Common Law.

1. State the principle of an employer's liability to his workmen at Common Law 25
2. Specify three kinds of negligence which would render an employer liable at Common Law to compensate his workmen for personal injuries sustained in the course of their employment 30
3. Is an employer liable at Common Law for injuries to a workman caused by the carelessness of a foreman? State reasons for your opinion 20

ACCIDENT BRANCH.

PART II., SUBJECT A.—CLAIMS AND THEIR SETTLEMENT, UNDER PERSONAL ACCIDENT, EMPLOYERS' LIABILITY, AND WORKMEN'S COMPENSATION ACTS, BURGLARY AND FIDELITY GUARANTEES, AND CONTINGENCY RISKS GENERALLY.

Two hours allowed for this paper.

QUESTIONS.

1. A manufacturer, insured as an "Ordinary" risk, and described in the policy as engaged in "Commercial and office duties only," meets with an accident whilst

Marks.

- temporarily engaged in assisting to repair his machinery which has broken down, and which, having stopped his mills working, it is of the utmost importance should be set going at the earliest moment. What course should be adopted under these circumstances in dealing with his claim under a Personal Accident Policy? Draw up a report and recommendation to your head office on the case 25
- *2. Specify the leading questions which should be asked in a Personal Accident Notice of Claim form 25
- *3. The like in an "Employers' Notice of Accident to Workman" form 25
- *4. The like in a Third Party (Driver's) Notice form 25
5. Give an example of a claim which would be admitted under a policy covering burglary, housebreaking, and larceny, which would not be allowed under one covering burglary and housebreaking only 20
6. The holder of a Third Party (Driver's) Policy reports that one of his drivers has run over and killed a child (aged five) living in a very poor locality. The driver was at fault, and was severely censured at the coroner's inquest. A claim is made by a person claiming to be the mother of the child. What course would you adopt? Give reasons for your answer 20
7. A ladder breaks, and a workman who is standing upon it at the time falls to the ground, fracturing his thigh. A claim is made under the Employers' Liability Act, 1880, and you are sent to investigate. Draw up a report, showing the points to which you have directed your enquiries and the result 20
8. An employer reports that a workman, who has been in his employ 15 weeks, has been suspended as suffering from lead poisoning, and is claiming under the Workmen's Compensation Act, 1906. How would you proceed to deal with this claim? 20
9. A traveller in receipt of a salary of £250 per annum is insured for £1,000 under a Fidelity Guarantee Policy. Subsequently he enters into a new agreement of service with his employers at a nominal salary and a commission on all orders. A defalcation occurs and a claim is made. The Insurance Company has not been notified of the new agreement. How would you deal with the claim? 20

*NOTE.—The object of the Candidate should be to avoid asking any unnecessary questions, and yet to ascertain as far as possible all essential particulars.

ACCIDENT BRANCH.

PART II., SUBJECT B.—CLASSIFICATION OF WORKMEN'S COMPENSATION RISKS AND APPLICATION OF RATES THERETO.

One hour allowed for this paper.

QUESTIONS.

Marks.

1. A builder usually paying about £2,500 per annum in wages, and using wood-working machinery, obtains a contract to demolish and rebuild a country mansion, four storeys in height. The amount of the contract is £20,000, and the work is to be completed within twelve months. He sublets the plumbing, plastering, glazing, and decorating, and the sub-contractors are required to take out Policies to cover their own risk. State the rates and endorsements required.
P.S.—A steam-driven mortar mill is used on the job .. 50
2. Classify and fix rates for the following trades:—
 - (a) Ships' anchor makers;
 - (b) Horse-drawn seed-drill makers;
 - (c) Steam fire engine and fire escape manufacturers;
 - (d) Chamois leather manufacturers;
 - (e) Refrigerator manufacturers (other than domestic) including fixing 40
3. State the rates for the following classes of risks, and give the conditions under which the quotations are made:—
 - (a) Grain, hay, straw, and seed merchants;
 - (b) Market gardeners:
 - (1) Legal full wages unlimited;
 - (2) Legal full wages, up to 20/- per week, for 26 weeks;
 - (3) Legal from date of accident;
 - (4) Legal liability only;
 - (c) Tin-plate workers 30
4. A firm are engaged in making castings which form parts of various kinds of machinery. In some instances they only cast; in others they complete by a staff of fitters. One of their patents is a square link-chain, in various sizes; the larger sizes are linked up by bolts and nuts. Another branch is making of small iron hoppers for elevators. The weights of castings range from 1 to 14 lbs., except a small department where they average about $1\frac{1}{2}$ cwts.
 State the rate or rates and give endorsements required 20

Marks.

- | | |
|--|----|
| 5. What principal processes does raw cotton go through before becoming cloth, and how would you rate such processes? | 20 |
| 6. State the nature of the work associated with a cotton waste dealer's business, and say how you would rate it .. | 20 |
| 7. In what manufactures are wool-sorters engaged, and how would you classify them? | 20 |

ACCIDENT BRANCH.

PART II., SUBJECT C.—POLICY CONDITIONS.

One hour and a half allowed for this paper.

QUESTIONS.

- | | |
|--|----|
| 1. A Third Party Tramway risk is rated at so much per cent. on passenger receipts. Draw up a clause providing for the payment and adjustment of the premium on this basis | 35 |
| 2. What conditions do you consider necessary to insert in a policy issued to the proprietors of a newspaper guaranteeing a coupon of £1,000 for death or permanent total disablement from any railway accident? .. | 35 |
| 3. Give any reasons why you would consider a clause advisable in an All-sickness and Accident policy giving the Company power to terminate the policy at any time on 7 days' notice | 35 |
| 4. What are the main objects to be borne in mind in drawing up a set of conditions in any kind of insurance policy? | 35 |
| 5. In drawing up a Third Party (Drivers') policy, in which the premium is calculated at so much per driver, what would you consider a fair and reasonable condition to insert in order to safeguard your Company in the event of the number of drivers being increased during the year of insurance? | 30 |
| 6. Why do most Companies insert a clause in Personal Accident policies requiring the assured to obtain their permission before effecting further insurances with other Companies? | 30 |

ACCIDENT BRANCH.

PART II., SUBJECT D.—POLICY DRAFTING AND ENDORSEMENTS.

One hour and a half allowed for this paper.

QUESTIONS.

Marks.

1. A builder, not using machinery, requires a Policy covering his workpeople under the Workmen's Compensation Act, &c.; he also desires to include his sub-contractor's risk.
Give the endorsements used when the minimum rate only is paid by the builder, also the necessary endorsements in connection with sub-contractors. 30
2. A firm of plasterers, holding a Workmen's Compensation Policy, secure a contract from a public authority. The latter insist on the contractor's policy being endorsed relieving them of all liability as principals.
Draft the necessary endorsement 25
3. Before the operation of the Workmen's Compensation Act, 1906, a firm of earthenware manufacturers request you to endorse their policy covering their liability against lead poisoning.
Draft the necessary endorsement 25
4. An employer has a son engaged in his business; the latter lives with his father. There being no legal liability, the employer requires compensation to be paid to his son in the event of an accident.
Give the endorsement granting additional benefits 25
5. Give the endorsement you would place on a Personal Accident Policy where proposer states he has been ruptured 25
6. How would you endorse a policy covering all sickness and accidents when proposer states he has lung trouble? 25
7. An employer is desirous of insuring his traveller against accidents, and will himself pay premium, but requires all monies due under the policy to be paid to him, as the traveller will receive full salary when laid up by accident.
Give endorsement 25
8. A policy-holder having severely injured the semi-lunar cartilage of his right knee, what endorsement would you place upon the policy before renewing? 20

ACCIDENT BRANCH.

PART II., SUBJECT E.—POINTS APPLICABLE TO THE SURVEY OF COLLIERY, ENGINEERING, AND BUILDING TRADES FOR THE PURPOSES OF WORKMEN'S COMPENSATION INSURANCES.

Two hours allowed for this paper. Marks for Honours or Passes will be awarded on the general merits of the papers.

1. Collieries.
2. Engineering (inside risk only).
3. Building (include those employing machinery).

The candidates may report on an imaginary risk under the above headings, but must report on one of each class, as follows:—

- (a) Fully describe the class in each case you take, recording such details as will enable the correct rate being applied.
- (b) Physical features of each class of risk.
- (c) Points you would consider in each class of risk that would render the insurance undesirable to be taken at the normal rates.

ACCIDENT BRANCH.

PART III., SUBJECT A.—LAW: THE RELATIONSHIP BETWEEN EMPLOYER AND EMPLOYED UNDER THE FOLLOWING ACTS, VIZ.:—

FATAL ACCIDENTS, 1846; FACTORIES AND WORKSHOPS, EMPLOYERS' LIABILITY, 1880; WORKMEN'S COMPENSATION ACT, 1906.

One and a half hours allowed for this paper.

QUESTIONS.

	<i>Marks</i>
1. Under what circumstances can compensation be claimed under the Fatal Accidents Act, 1846?	20
2. Who are to benefit under the aforesaid Act?	20
3. By whom can an Action-at-Law be brought?	30
4. (a) Is it possible to obtain compensation under the Factory and Workshops Act, 1901? (b) If so, under what circumstances?	20
5. In what respect does the Employers' Liability Act, 1880, differ from the Fatal Accidents Act, 1846?	30
6. To whom is the Workmen's Compensation Act, 1906, applicable?	20

Marks.

7. (a) Is it possible to disclaim liability under the Act last mentioned? (b) If so, for what reason? 20
8. In what manner does the aforesaid Act differ from the Workmen's Compensation Acts of 1897 and 1900? . . 20
9. Upon what date did the Employers' Liability Insurance Companies Act, 1907, become operative, and what is the effect of the Act? 20

ACCIDENT BRANCH.

PART III., SUBJECT B.—DECIDED CASES UNDER EMPLOYERS' LIABILITY ACT, 1880, AND WORKMEN'S COMPENSATION ACT, 1907.

Two hours allowed for this paper.

QUESTIONS.

Employers' Liability Act, 1880.

1. A workman under the Employers' Liability Act, 1880, is defined as "Any person being a labourer, servant in husbandry, journeyman, artificer, handicraftsman, miner, or otherwise engaged in manual labour." What construction have the Courts put upon the words "manual labour"? and give any case law on the subject 35
2. A builder's workman falls from a scaffold—an upright pole supporting which has broken and precipitated the plank, on which he was standing, to the ground. The pole was borrowed from a neighbour, and put up by the workman's employer's foreman, who did not consider it necessary to examine it. After the accident, an examination of the pole showed that it had snapped where the wood was much decayed. What is the employer's position in this case? Can he be held liable for borrowed plant? Give any case on the subject 35

Workmen's Compensation Act, 1897.

1. A claim by the widow of a deceased workman is made upon a firm, and it is found upon investigation that the widow for twelve years preceding the death has not lived with her deceased husband, nor been supported by him; that in fact she had been living with a son, who maintained her. Has the widow a claim under the Workmen's Compensation Act as a dependent? State the decided cases bearing upon the point 30

Marks.

2. A gang of four men are engaged in cleaning out a well ; the two who are working down the shaft are overcome by foul gas, and one of the remaining two goes down to endeavour to rescue his mates. In doing so he receives injury. Can it be said that this accident arose out of and in the course of the employment? Cite any case law on the subject 25
3. The representative of an Insurance Company indemnifying the employers of an injured workman, negotiates with the claimant for a settlement. At the interview, the Insurance Company's representative gives the man an erroneous idea of the report of the doctor who examined him on behalf of the Company, and on the strength of the information imparted the claimant is induced to settle for a small sum. Can the workman upset the settlement so obtained, and is there any case covering the point? 20
4. A man cuts his wrist severely, and receives weekly compensation for upwards of twelve months, when he dies. At the inquest, on the evidence of the man's own medical attendant, who stated he had attended him for dropsy and gout for two years, a verdict of death from natural causes is returned, the doctor having stated that the accident to the wrist had nothing to do with death. What cases would be cited in support of a contention that the injury had accelerated death? 35
5. A workman meets with an accident whereby his earning capacity is reduced by eight shillings per week. What (if any) rule does a County Court Judge adopt in regard to dealing with the question of awarding the eight shillings which the workman, through his solicitor, claims to be entitled to, and what is the leading case on this point? 20

ACCIDENT BRANCH.

PART III., SUBJECT C.—COURT RULES OF PROCEDURE UNDER WORKMEN'S COMPENSATION ACT, 1906.

One and a half hours allowed for this paper.

QUESTIONS.

1. What is the procedure laid down by the Statutory Rules and Orders, Workmen's Compensation Act, 1906, in regard to the payment into Court and application of weekly payments payable to persons under legal disability? 30

Marks.

2. What is the procedure relating to the summoning of a medical referee to sit with a Judge as an assessor? .. 25
3. What are the rules to be observed in connection with the filing and service of documents and notices with the County Court Registrar, or on any party to the proceedings? 30
4. What is the course to be followed where, an award or agreement having been recorded in one County Court, it is desired to take subsequent proceedings in the matter in another Court? 25
5. What are the principles laid down as to the proper Court in which agreements can be filed or proceedings taken under the Act? 30
6. What is the procedure to be adopted after a settlement of a claim by dependents of a deceased workman has been arranged? 30
7. Give particulars as to the rules laid down in regard to the registration of a Memorandum of Agreement made under the Act for settlement in a non-fatal case by payment of a lump sum 30

ACCIDENT BRANCH.

PART III., SUBJECT D.—LAW RELATING TO PERSONAL ACCIDENT INSURANCE.

One and a half hours allowed for this paper.

QUESTIONS.

1. Outline briefly the provisions of Lord Campbell's Act, and name the persons who benefit thereunder .. 15
2. On what section of the injured would the provisions of the above Act impose a hardship, and state what steps, if any, are being taken to alter the existing law .. 20
3. The holder of an Accident Policy which includes also provision for certain diseases, of which pleurisy is one, suffers from an attack of that disease and it is followed by cardiac weakness, causing further total disablement. Is the Company liable for the whole term of the disablement by both pleurisy and heart failure? .. 25
4. The conditions of an Accident Policy provide that notice of an accident must be given within a certain period, which is specified. The holder of the Policy fails to notify the accident within the time stated. Would the Company's contention that the conditions had been violated stand in law? If so, why? .. 25

	<i>Marks.</i>
5. Is an Accident Policy, as usually drawn, a contract of indemnity?	20
6. What evidence is required to enable an insured to recover compensation for total disablement?	20
7. A man crossing a road is seized with a fit, and falling amongst the traffic, is run over and killed. Can his representatives recover?	20
8. An Accident Policy covers a person named "as a passenger in a public conveyance provided by a common carrier." The policy-holder, travelling by train, had left the carriage, but returned to recover some article of personal property left therein, and in doing so was injured. Is this included within the scope of his policy?	20
9. When death results from disease, the effect of an accident, can this be considered accidental death?	15
10. Would a Company be liable for death, the result of a surgical operation intended to relieve a patient suffering from rupture caused by accident?	20

NAMES OF SUCCESSFUL CANDIDATES—1908.

The following is the Official List of the Successful Candidates at the Examinations held simultaneously at the various Insurance centres, April 1st to 15th, 1908. The letter "P" opposite a name signifies Pass, "H" Honours, and "C" Certificate.

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NAMES OF SUCCESSFUL CANDIDATES, 1908—continued.

[illegible]

[illegible]

[illegible]

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NAMES OF SUCCESSFUL CANDIDATES, 1908—continued.

	PART I.							PART II.					PART III.					
	Policy Drafting.		Re-Insurances.		General Rules.		Book-keeping.		Chemistry.		Electricity.		Fire Insurance.		Average Clauses.		Fire Insurance.	
	Bleach, Dye, and Print Works.	Shipbuilding and Metal Working.																
LEEDS—continued.																		
Robinson, Herbert Ed., <i>Liverpool and London and Globe</i>	P	P	P															
Rycroft, Sydney H., <i>Com. Union</i>				H														
Stott, Chas. Clifford, <i>Norwich Union</i>				P														
Tebbs, William, <i>County Fire</i>																		
Turner, Clifford, <i>County Fire</i>	P	P	P	H		C												
Vaughan, Chas. G., <i>British Law</i>	H																	
Wardle, Jas. Kenneth, <i>Liverpool and London and Globe</i>									C									
LEICESTER.																		
White, Chas. Kirbell, <i>Alliance</i>													P					

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NAMES OF SUCCESSFUL CANDIDATES, 1908—continued.

[illegible]

[illegible]

[illegible]

[illegible]

Bickman, Arthur, Caledonian	...	P	...	...	...	...	...	...
Hirst, Percy Buxton, North British and Mercantile	...	...	...	...	...	...	...	...
Imrie, John, Commercial Union...	...	P	...	...	...	...	...	...
Jackson, Edwin S., Atlas	...	...	...	...	...	...	...	...
Jones, Cyril C., Northern	P	P	...	...	...	...	...	...
Kenyon, Joseph P., Commercial Union	H	H	P	...	...	...	...	...
Lewis, Sidney D., Scottish Union and National	H	P	H	...	...	...	...	...
Lowarch, John Walter, Employers' Liability	...	...	H	...	...	...	...	...
Lowe, Percy T., Royal Exchange	P	...	...	...	...	...	...	...
Mason, Jas. Herbert, Northern	...	...	...	...	...	...	...	...
Mellor, Ernest, Royal Exchange	...	P	...	...	...	...	...	...
Mercer, Ross Fredk., Law Union and Crown	...	P	...	...	...	...	...	...
Newton, Hy. Stafford, North British and Mercantile	...	P	...	...	...	...	...	...
Oldham, John, Law Union and Crown	P	...	...	...	...	...	...	...
Rowland, Aug. Chas., Royal Exchange	...	P	...	...	...	...	...	...
Smith, Oswald C., Guardian	H	H	P	...	...	...	...	...
Smith, Sydney W., Employers' Liability	...	...	P	...	...	...	...	...
Swainston, Frank R., Alliance	H	...	...	...	...	...	...	...

[illegible]

ACCIDENT BRANCH.

[illegible]

Meredith, Llewellyn, International	...	P	...	...	..	...	...	...
Poynton, Ernest, Law Accident ...	...	.	P	...	...	...	...	...
Robbins, John, Law Union and Crown	P	...	...	...	...	...	...	...
Robinson, Thomas M., London and Lancashire	..	..	...	...	...	...	...	...
Sullivan, Herbert C., Royal Exchange	P	P	P	...	...	...	...	...
Verdon, John W. H., Ocean ...	..	..	...	P	...	...	...	...
EDINBURGH.								
Lammie, Geo. W., Royal ...	...	..	...	C	...	...	...	...
Windle, Frederick, Norwich and London	H	P	P	...	...	...	...	...
GLASGOW.								
Lindsay, John, Central ...	...	P	P	C	...	...	...	...
McGregor, Llewellyn, General Accident	...	P	..	...	...	...	...	...
Shanks, Robt. John, British Crown	P	H	P	C	1908	...	...	...
LEEDS.								
Peake, Edward, Employers' Liability	P	C	1908

NAMES OF SUCCESSFUL CANDIDATES, 1908—continued.

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LIVERPOOL.	..	P	P
	P	P	H	C	1908
	P	P	H
	P	P	H
	P	P	P
	P	P	P
	P	P	H
	P	H	H
LONDON.	P	H	H

LIVERPOOL.

Coulson, C. T., *Liverpool and
London and Globe*
Farrer, Chas. E., *Scottish Union
and National*
Goulding, Archie, *Railway Pas-
sengers*
Jones, Thos. Lewis, *Liverpool and
London and Globe*
May, Percy M., *Liverpool and
London and Globe*
Morris, Robert D., *Liverpool and
London and Globe*
Stubbs, James Forrest, *Liverpool
and London and Globe*
Surmun, Henry, *London and Lan-
cashire*

LONDON.

Allan, Stuart D., *London and
Lancashire*

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NAMES OF SUCCESSFUL CANDIDATES, 1908—continued.

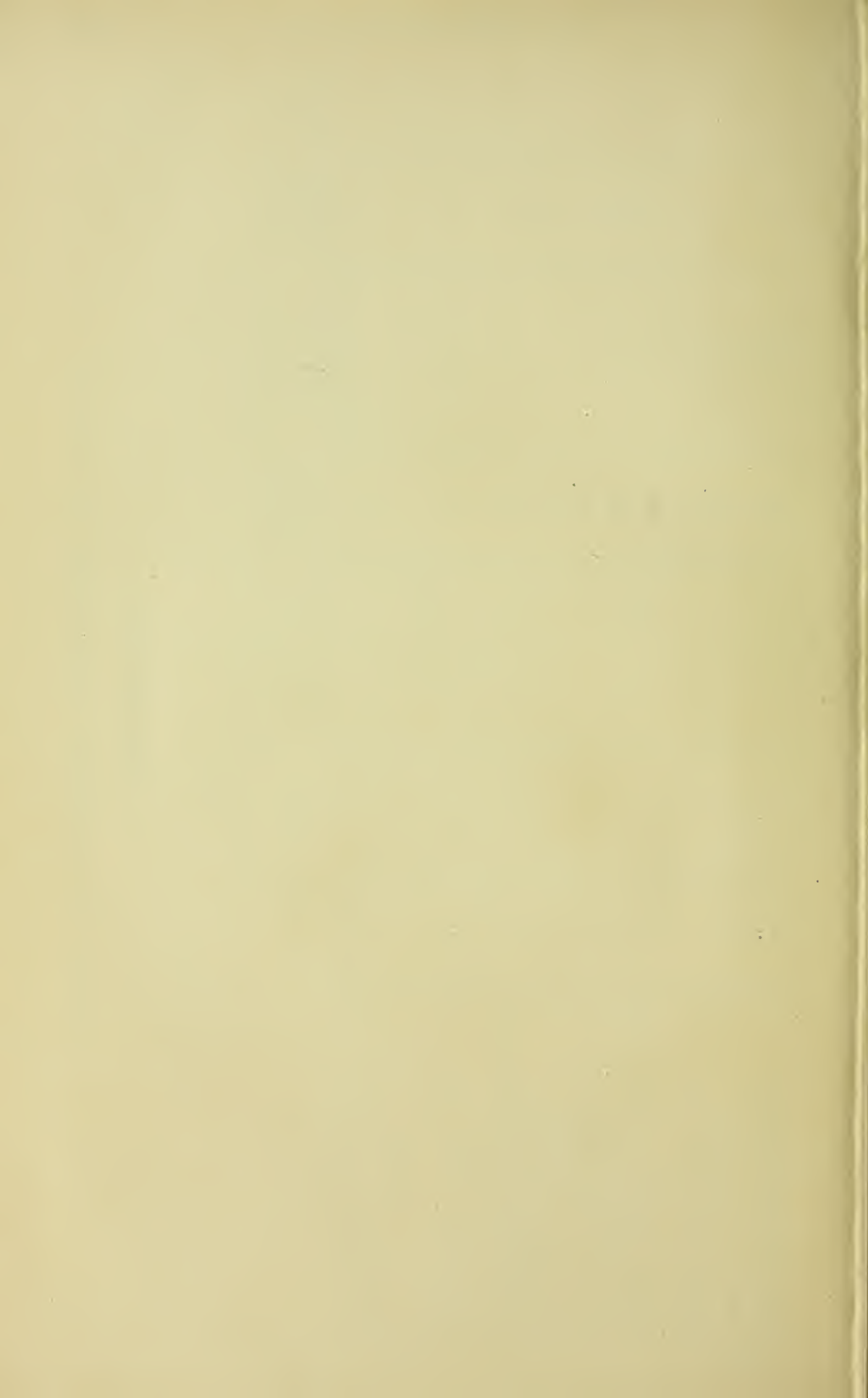
LIFE BRANCH.

	PART I.				PART II.			
	Arithmetic.	Algebra.	Principles of Book-keeping.	Passed in Part I.	Practice of Offices, &c. Forms of Policies, &c.	Elementary Principles of Law, &c. Usage in regard to Loans, &c. Issue of Circulars, &c. Climatic Conditions, &c.	Bonus Systems. Method of Calculating Expense Ratios, &c.	Passed in Part II.
BRISTOL.								
Kepple, Reg. H. J., <i>Sun Fire</i> ...	..	..	C	1908	..	...	...	...
DUBLIN.								
Brownlee, John Wm., <i>Abstainers and General</i> ...	..	...	..	..	H	P	P	...
GLASGOW.								
Cotter, Albert R., <i>National Provident</i> ...	C	C	C	1908	...	...	...	..
Lindsay, Matthew, <i>National Provident</i> ...	...	...	...	1908	...	...	H	1908
LIVERPOOL.								
Bolton, Cecil Rowley, <i>Royal</i> ..	..	...	...	...	P	P	...	...
Bray, Reg. Wm., <i>Royal</i> ...	C	C	...	...	P	P	..	...

Brown, Thos. Geo., <i>Guardian</i>	...	..	..	...	...	P	...	P	...
Cotter, Walter E., <i>Royal</i>	...	...	...	...	...	H	...	P	...
Fletcher, Harry J. N., <i>Royal</i>	...	..	...	...	...	P	...	P	...
Hughes, David Wm., <i>Royal</i>	...	...	..	...	...	P	...	P	...
Jones, Ceredig, <i>Alliance</i>	...	...	...	...	...	P	...	P	...
Morris, Ed. Owen, <i>Royal</i>	...	..	...	...	...	H	...	P	...
Moss, Albert Victor, <i>Royal</i>	...	C	C	...	...	P	...	H	...
Roberts, Alec Owen, <i>Royal</i>	...	..	...	...	...	H	...	P	...
Wands, Robt. Douglas, <i>Royal</i>	..	...	...	...	...	P	...	P	...
LONDON.									
Hill, Edwin A. K., <i>Equitable of U.S.A.</i>	...	...	...	...	...	H	..	..	...

LONDON.

Hill, Edwin A. K., *Equitable of U.S.A.*



SYLLABUS OF SUBJECTS, MONTREAL AND TORONTO.

FIRE BRANCH.

FIRST EXAMINATION (FIRE, LIFE, AND ACCIDENT).

- (a) Arithmetic.
- (b) Euclid. Book 1.
- (c) Algebra, up to and including factoring.
- (d) Composition.
- (e) Book-keeping.
- (f) Geography.

SECOND EXAMINATION.

- (a) General rules and tariffs of the Canadian Fire Underwriters' Association.
- (b) Average and co-insurance clauses.
- (c) Plan drawing to scale.
- (d) Chemistry—elementary.
- (e) Re-insurances—policy drafting and endorsements.
- (f) Correspondence—office practice.
- (g) Building construction, including heating, ventilating, and lighting.
- (h) Electricity—elementary.

THIRD EXAMINATION.

- (a) Application of the Canadian Fire Underwriters' mercantile and special schedules upon actual survey.
- (b) Fire protection—municipal and private.
- (c) Sprinkler equipment.
- (d) Chemistry—advanced.
- (e) Electricity—advanced.
- (f) History of Fire Insurance.
- (g) Loss Adjustments.
- (h) Insurance Law.
- (i) Government statements and analysis of companies' accounts.
- (j) Theses on at least two important classes of manufactories.
These are to be sent to the Secretary within twelve months after passing final examination. The certificate of the Institute will not be issued to a candidate until such Theses have been furnished and approved.

LIFE BRANCH.

FIRST EXAMINATION.

The same as the first examination in the Fire Branch.

SECOND EXAMINATION.

- (a) Use of logarithms, interest and discount tables.
- (b) Practice of Companies as to applications for assurance, and medical and other reports.
- (c) Practice of Companies as to loans on policies, surrender values, and settlement of claims.
- (d) Plans of assurance, policy writing, conditions of assurance, drafting special conditions, knowledge of usual office forms.
- (e) Correspondence, literature, and advertising.
- (f) Elementary principles of life assurance law.
- (g) Algebra, from factoring, up to and including quadratic equations.

THIRD EXAMINATION.

- (a) Elements of life assurance book-keeping.
- (b) Elementary principles of, and simple arithmetical problems in, probability.
- (c) Natural and level premium systems of life assurance; nature of life assurance reserves; comparative reserves by different tables of mortality and interest.
- (d) Analysis of life assurance accounts.
- (e) Selection of risks.
- (f) Investments and re-assurance.

AT THE EXAMINATIONS OF
THE INSURANCE INSTITUTE OF TORONTO,
APRIL, 1908.

NAME.	(A)	(B)	(C)	(D)	(E)	(F)
H. G. Brunnquell - - - -	..	..	II.	P	II.	I.
F. Croydon - - - -	..	..	..	P	..	..
E. D. Hancock - - - -	P	..	II.	P	..	I.
H. E. Harcourt - - - -	..	P	..	..	..	..
J. F. Hughes - - - -	P	P	I.	II.	P	II.
J. M. Iredale - - - -	..	..	..	P	P	I.
J. B. Leyland - - - -	..	II.	..	..	P	P
D. F. Macdonald - - - -	P	..	P	..	P	..
A. C. Mardon - - - -	..	..	..	P	..	II.
J. J. Mason - - - -	..	..	..	II.	P	..
J. L. Murphy - - - -	..	..	P	..	P	I.
G. S. Pearcy, jr. - - - -	..	..	..	..	..	P
C. M. Robb - - - -	..	..	..	..	..	II.
C. M. Sharkey - - - -	..	II.	II.	II.	..	II.

NAME.	(A)	(B)	(C)	(D)	(E)	(F)	(G)
H. G. Brunnquell - -	II.	II.	II.	II.	II.	I.	..
J. H. Wright - - -	II.	II.	II.	II.	II.	II.	II.

NAME.	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
H. E. Freeman - - - -	P	II.	I.
H. E. Harcourt - - - -	II.
J. L. Noble - - - -	..	P	..	P
R. R. Martin - - - -	II.

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SUCCESSFUL CANDIDATES

AT THE EXAMINATIONS OF
THE INSURANCE INSTITUTE OF MONTREAL,
APRIL, 1908.

N.B.—I. denotes “First-class Honours”; II. denotes “Second-class Honours”; “P” denotes “Pass.”

First Examination. Fire, Life, and Accident Branches.

NAME.	(A)	(B)	(C)	(D)	(E)	(F)
A. R. Graham	P	P	II.
H. T. Warrainer	P	II.	..	..	II.

Second Examination. Life Branch.

NAME.	(A)	(B)	(C)	(D)	(E)	(F)	(G)
E. L. Earl	P	II.	II.	II.	II.	..
E. S. Taylor	P	P	II.	II.	II.	P	P

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